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► HOT-HATCH ISSUE

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Down the Hatch

It must have been about 1998 and I was buying what would be my last Cathode Ray Tube television. It was a Sony Trinitron, flat-screen—a 30-inch I think. It was a beautiful TV at the time. I just happened to find it on sale one night at one of the giant electronics stores that occasionally does offer prices that I would call a “best buy.” The salesman had the easiest close of his life. I actually had to go find someone to sell me the freakin’ TV. If I remember correctly, I had the nerve to pull him away from watching a very important sports tournament that was on every television, radio, and broadcast-capable appliance in the store. “I want that one,” with an authoritative finger pointed at aforementioned silver box. He responded with a grunt, and that was the extent of the sales process.

For whatever reason, it’s compulsory that the sales guy, who I’m sure still regales his fellow sales-brethren with the tale of that day, had to accompany me to my car with my new, prized, nearly 1-ton television. As we walked through the parking lot, dodging the towering SUVs and pickup trucks so essential to suburban life, we arrived at my car, a diminutive ’92 Mk2 GTI. The sales professional nearly fainted right out of his azure polo shirt, aghast that not only would I think my minuscule motor was adequate for such a purpose, but clearly I would need to return the TV—and that involved paperwork. In those days, we did a lot of writing in spaces on carbon paper rather than typing it all into a computer.

I, however, confidently flung open the hatch and in a great feat of strength hurled the box inside the back of my car before closing the hatch all in one deft motion, leaving said salesman speechless. Azure Polo stared at me as if I had just stuck a jumbo jet inside a hatbox. The trick was having the foresight to fold the rear seats down before entering the store. This was my first moment of pure hot-hatch utility greatness.

Several years and two generations of GTI later, I found myself moving across town. Moving a few miles is far worse than moving a few states. You tell yourself it will be easy—just load things in your car, drive across town, rinse, and repeat. It isn’t that simple, obviously.

I moved all the worldly possessions of my wife and myself in two days in a Mk4 GTI. In truth, we did rent a moving truck for a half-day, as even a larger Mk4 GTI

won’t hold a couch. At one point during my move, one of our neighbors was sitting outside, in her only large domestic SUV waiting for someone inside. I brought out two full-size moving boxes on a furniture dolly. Neighbor-no-taste-in-cars scoffed visibly at the idea of my hatchback filling the roll of the U in her SUV. Open trunk, insert boxes. Enjoy perplexed look on neighbor’s face. I duck back inside, return with two more boxes of the same size. The smirk of condescension on Mrs. Neighbor’s face as she senses impending doom beams through her green tinted safety glass. Both boxes disappear into the back of the GTI. I should probably mention at this point that I had actually removed the entire rear seat in the GTI, leaving nothing but massive, cavernous nothingness with which to fill. After the four boxes, I continued filling space with objects of random sizes and shapes for another three trips inside. My neighbor was enthralled, as if she was finally seeing up the magician’s sleeve. She was seeing the 18 clowns actually being loaded inside the car instead of the piling out.

It isn’t the cargo space that makes a hatch hot. I was doing a shoot one afternoon with a couple of 911s on a particularly technical canyon road. I was leading the two to our photo location, and as we pulled away from the parking lot both owners seemed a bit annoyed that they would be paced by a rather pedestrian Mini on such a great section of canyon. A Cooper S can carve twisty roads like a sharp knife through Spam. At the final pullout we were using for beauty shots, both drivers poured out of their drivers’ seats and were looking less than ready for their close-ups.

I have heard that Facebook founding grillionaire Mark Zuckerberg and Robert Downey Jr. are both GTI drivers. I have actually seen photos of Zuckerberg in his, but

Tony Stark is probably slightly more stealthy and uses tinted windows to keep a lower profile. If a hot-hatch is good enough for Iron Man, it’s good enough for me.”

hatch is good enough for Iron Man, it’s good enough for me. This issue is dedicated to the hot-hatch in several different forms. All are supremely usable, fun to drive, and offer great performance. Any of them will hold a TV or earn you bulk quantities of respect in the twisties.

Michael Febbo, Editor
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dewalt.com



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fondmetalusa.com



BENDPAK MD-6XP MID-RISE LIFT

Most of us would love to add a car lift to our home garage, but cost, space, and practicality all seem to get in the way. The BendPak MD-6XP is a mid-rise lift that is able to lift your car up to 48 inches in the air in just 45 seconds, while being compact enough to fit entirely underneath most vehicles when not in use. The MD-6XP has a max capacity of 6,000 pounds, making it heavy duty enough for most family sedans or SUVs—a good bargaining tool when convincing your significant other. The lift runs off a standard 115V electrical socket (a nice bonus) and the hydraulic pump stows on a cart that doubles as a jack to move the lift around your workspace. **\$1,955**

bendpak.com



MILLTEK SPORT BMW F32 428 PERFORMANCE EXHAUST SYSTEM

This hand-finished stainless steel exhaust comes in a couple of different configurations. For max power gains, you'll want to go with the large-bore downpipe, "de-catted" version (as in no catalytic converter), which can be ordered with a high-flow sports cat if you're interested in staying within the law when you're off the track; additionally, it features 3-inch plumbing. A cat-back system is also available, which upgrades the rear of the car to include a dual exit GT90 trim set. This 435i-style dual-outlet can be ordered either resonated or non-resonated and requires the 435i M Sport rear valance from a BMW dealer to fit; tailpipe trims can be ordered as either Cerakote black or polished. Those looking for a more OEM look and who wish to keep the original 428 valance can select the twin outlet cat-back style, complete with GT76 trims, again in either Cerakote or polished.

milltekSport.com



FORGE FORD FOCUS ST INDUCTION KIT

Help that Focus ST breathe a little easier with this intake system, which boasts a custom-wound silicone induction hose and a racing-proven Pipercross high-flow foam cone filter. Forge is claiming gains in the order of 17 hp over the stock airbox, with more available via tuned or remapped engines, and the kit contains everything needed for installation, including stainless steel clamps, inlet pipework, and instructions. Plus, it doesn't look half bad. **\$288.**

forgemotorsport.co.uk



BILSTEIN BMW E30 M3 GROUP N DAMPERS

Not strictly for Group N, so-called "showroom class" competition (a run group heavily limited in modifications), Bilstein's dampers are also suitable for track days or just flooring it through a twisty section on your everyday commute. Each unit is hand-finished in Bilstein's German factory, using the latest in gas pressure technology and inverted monotube construction, and goes through a full dyno analysis before getting signed off by test drivers and engineers at both the Nürburgring as well as the company's Papenburg test facility.

bilstein.de



XPEL ULTIMATE AND STEALTH BMW PAINT PROTECTION FILMS

The difference between XPEL's Ultimate and Stealth products appears to be finish—as in Ultimate ends up glossy while Stealth finishes matte. Both are characterized as virtually invisible, self-healing urethane films (thanks to elastomeric polymers—science!), and XPEL offers a range of computer-designed, precision-cut patterns to fit most BMWs. For front-end coverage or protecting the entire vehicle's paint, XPEL recommends pro installation; the company offers a network of sanctioned installers in 36 countries and 50 U.S. states. Both Ultimate and Stealth carry a 10-year warranty.

locator.xpel.com



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raceramps.com

GEAR

VORSTEINER LAMBORGHINI HURACAN VERONA AERO PROGRAM

These latest carbon-fiber goodies for the Huracan apparently do more than just look good. Vorsteiner developed a bumper-hugging front spoiler that directs air into the openings of the front radiators but doesn't alter ground clearance too much. Meanwhile, the race-inspired Verona side blade extensions are designed to improve downforce and airflow around the supercar and behind the front wheels.

vorsteinernero.com



TAROX VW GOLF GTI MK V UPRATED DISCS AND PADS

Tarox's sweet-looking discs come in four different flavors: the diagonally vented G88, JDM-inspired Sport Japan, spiral grooved F2000, and the traditional, OEM-styled Zero. Each features a CNC-machined face and goes through a structural stress-relieving heat treatment at the end of each machining cycle. Match them up with Tarox's pads, which come in two varieties, Strada for daily driven vehicles and track-ready Corsa for more demanding, high-performance applications. Prices start from \$456 for a front pair of any of the disc designs, while pads start from \$175 for the Strada street pads.

tarox.co.uk

HOTCHKIS VW GOLF GTI MK7 ADJUSTABLE ANTI-SWAY BARS

In the name of flat cornering and defeating understeer, Hotchkis Sport Suspensions offers this kit for MK7 GTI owners, a setup that includes a 28.5mm tubular front antiroll bar and a 25.5mm tubular rear bar. The front stabilizer is adjustable, with rate increases of 95 and 125 percent over stock, while the rear bar delivers an increase in roll stiffness of 115 percent over OEM. Hotchkis' sway bars are made in the USA, include all hardware needed for proper installation, come with grease-able polyurethane bushings, and are finished in powdercoat.

hotchkis.net



KW 2014+ PORSCHE 911 GT3 CLUBSPORT COILOVER SUSPENSION

These bad boys are geared for users looking at a more aggressive setup for racetrack events with mild street use. Offering 0-10 mm of ride height adjustment fore and aft, ClubSports boast stainless steel construction, racing top mounts, increased spring rates, tuned valving, and large diameter piston rods. All applications feature adjustable (and independent reacting) rebound and compression damping. **\$6,999.99**

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'16 Land Rover Range Rover Sport SVR

THE MOST EXTREME LAND ROVER EVER

Words Colin Ryan

Anyone who drives the '16 Range Rover Sport SVR needs to send a thank you card to Mike Cross. Seriously.

The good Mister Cross is officially known as Jaguar's chief engineer in the company's vehicle integrity division. In reality, he's been Jaguar's star test driver and suspension wizard for years. Now that Jaguar and Land Rover come under the same Tata-owned umbrella, this is one example of synergy of which even the most marketing-speak-averse would approve.

The number of SUV crossovers that won't embarrass themselves on the track is, not surprisingly, small. The Jeep Grand Cherokee SRT is OK. But the BMW X5 M and X6 M are more like it. Those two are the real rivals to the Range Rover Sport SVR. Of course, no SUV really needs to be track-worthy, but it's a hoot when they are. You're driving that high in something that heavy, saying to yourself: "I'm taking a fast corner, in an SUV, and I'm really having a good time."

That's how adept engineers have become at mitigating all sorts of physical laws. The techs in Jaguar Land Rover's Special Vehicles Operations (the SV in SVR), including Mike Cross, have taken the Range Rover Sport—a midsize premium SUV that still has the kind of off-road capability for which its larger sibling, the Range Rover, is renowned—and given it what BMW would call the M treatment. Or what Mercedes-Benz would call the AMG treatment.



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At its heart is a 5.0L supercharged V-8 also found in the Jaguar F-Type R (which explains the R in SVR). It develops a mighty 550 hp and 502 lb-ft of torque (for comparison, the X5 M makes 575 hp, so pretty close). It breathes out through a quad-pipe exhaust system with similar sonorous properties to the V-8-powered F-Type. It barks, growls, pops and spits, and probably threatens other crossovers in Klingon.

The SVR will sprint from standstill to 60 mph in just 4.5 seconds. Remember, this vehicle weighs more than 5,000 pounds. What the numbers don't convey is the remarkable lack of effort it all seems to require. Just flex that right foot and fly.

Because it's a Land Rover, the SVR has permanent all-wheel drive. And it even gets the same terrain response system as the rest of the Land Rover portfolio to hustle over grass, gravel, mud, ruts, sand, snow, and rocks. A paddle-shifted, eight-speed automatic transmission has been re-jigged to perform faster shift times, yet it also has a transfer case, because this is a Land Rover.



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Delving into the dark art of chassis tuning has resulted in stiffer rear subframe bushings and an upgrading of the air suspension. The company claims a 20 percent increase in the ability to contain cornering forces. It sure feels cohesive. Ride quality is far from jarring, while body lean is kept on a short leash, thanks to active roll actuators that take the place of conventional antiroll bars. Sometimes the slap of tires on expansion joints will be heard and felt, but this could still be a daily driver without any problem.

Stomp on the brake pedal and six pistons in each Brembo front caliper bear down on 15-inch discs. They also help with JLR's "torque vectoring by braking" system. It means an individual wheel is slowed down (imperceptibly) to keep the correct line going into a quick corner. On the exit, the all-wheel-drive system provides the necessary traction. It's an intelligent setup that can send 100 percent of torque to either axle if necessary, but the usual split is 50/50.

Yes, there's electrically assisted steering, but don't fret. For the most part, it's fine. Just a little on the light side in low-speed situations, which is better than being too heavy.



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TECH SPEC

'16 LAND ROVER RANGE ROVER SPORT SVR

LAYOUT

Front-engine, AWD

ENGINE

5.0L, 32-valve, DOHC, supercharged V-8

DRIVETRAIN

Eight-speed automatic transmission with transfer case

SUSPENSION

Double wishbone, air springs (f); multi-link, air springs (r)

BRAKES

Six-piston calipers, 15-in. discs (f), four-piston calipers, 14.4-in. discs (r)

WHEELS & TIRES

21x9.5 alloys, 275/45 Continental Cross Contact all-season tires (f & r)

PERFORMANCE

MAX POWER

550 hp @ 6,500 rpm

MAX TORQUE

502 lb-ft @ 3,500 rpm

0-60 MPH

4.5 sec.

TOP SPEED

162 mph

ECONOMY (CITY/HWY/COMBINED MPG)

14/19/16

MSRP

From \$111,470 (incl. D&D)



Now here's the funny part. This thing can still handle dirt duties. It can even wade through 33.5 inches of water. Although the intention was to make "the fastest, most powerful Land Rover ever," the company declared it would make "no off-road compromises." Most of the angles and ground clearances are the same as the regular Range Rover Sport, with one exception. The lower front spoiler—put there for aerodynamic purposes—reduces the approach angle a tiny bit. But the suspension has 2 inches of adjustable travel, so if some high-speed adventure also involved leaving the tarmac completely, the SVR could be just the ticket.

Having gained admission, the classy interior includes model-specific sport seats up front. It even has those holes in the shoulder area where a multi-point racing harness would go through. They offer plenty of lateral support, yet they're comfortable enough for long drives. Even the rear seats have been jazzed up to match, although Land Rover retains the five-seat layout rather than dispense with that munchkin-sized middle rear pew. The good thing is that the rears can recline a little and headroom is more than generous.

Like a great number of performance vehicles, the SVR was tested, shaken down, and signed off after development sessions on the Nürburgring Nordschleife, probably with Mike Cross doing most of the laps, which was no doubt a bundle of fun. A time of 8 minutes, 14 seconds is not hanging around, especially for an SUV. Thinking about it, perhaps he should be sending us a thank you card. 

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'16 Mini John Cooper Works Hardtop

WORKING SMARTER NOT HARDER

Words Kyle Fortune
Photos Max Earey

"Mini's mission statement for the John Cooper Works with this third-generation model was fairly plain—to distance it further from the regular Cooper S version."

Goodwood racetrack, England, Mini's latest John Cooper Works and it's about as British a car launch as you could possibly conceive. Gloss over the fact that Mini is owned by Germany's BMW and what a jolly time we'll all be having chaps. If it wasn't for America that is, as Mini's U.K. Oxford plant was only able to ramp up production with one transmission in time for the launch event, and to placate the export markets that means the optional six-speed automatic. Like mayonnaise on French fries and beers in cinemas, Europeans do things differently, and the U.K. is particularly partial to three pedals and a stick. More than 80 percent of British buyers will purchase this John Cooper Works Mini—a car that the firm says is the most powerful production Mini to date—so equipped. American buyers will bias the six-speed automatic, which at least comes standard with paddles (those are optional on the standard Cooper S), giving you the ability to take control when the mood strikes you.

It might just do that more often than not. Even stymied slightly by the six-speed auto (a torque convertor, rather than dual-clutch setup), the Mini John Cooper Works is still a hilariously entertaining

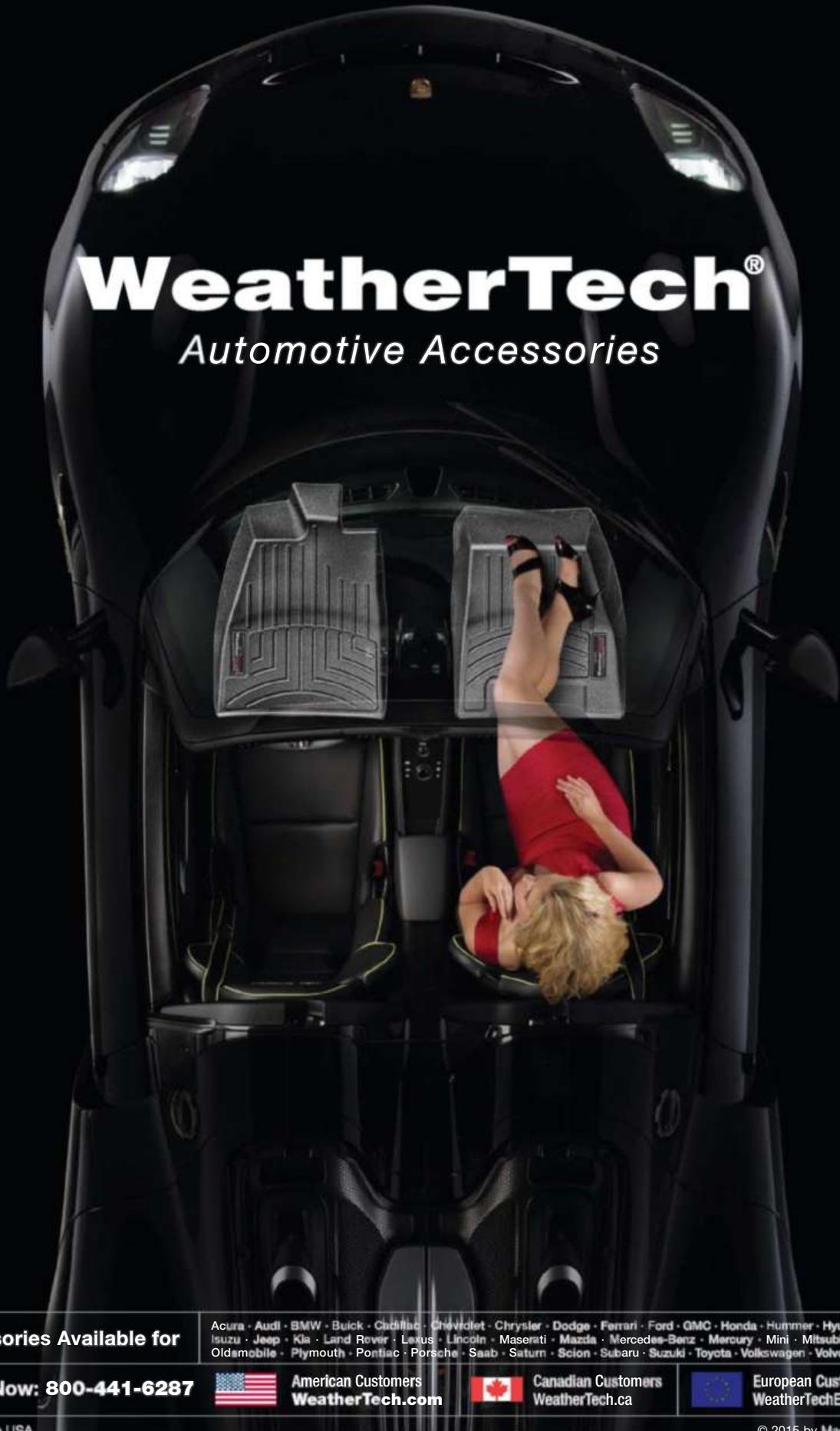
drive. Thanks to a turbocharged 2.0L four-cylinder engine that's seen its power boosted to 231 hp, achieved by the fitment of lighter pistons, ECU trickery, improved cooling, increased boost pressure from a revised TwinPower turbocharger, and reduced backpressure in the exhaust system. It all allows the John Cooper Works to scratch and claw to a Launch Control-assisted 60 mph in just 5.9 seconds and gives it 50- to 75-mph Fifth gear acceleration that betters a Porsche 911 Carrera S. Yes, really. But then that 231 hp is backed up by 236 lb-ft of torque, which comes in at a usefully low 1,250 rpm and remains, delivering that peak output until 4,800 rpm. That makes for an engine of huge flexibility, which is as happy luggering at low revs as it is racing toward its redline.

Credit to the engineers here, too. Opt for manual mode on that six-speed automatic and it's exactly that. It'll bounce off the limiter endlessly until you pull the right paddle, and the only downshifts it'll do without your input are those to prevent it stalling. Though if you're going to drive it so, then do the right thing and save a few dollars and do it properly...



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Mini's mission statement for the John Cooper Works with this third-generation model was fairly plain—to distance it further from the regular Cooper S version. Visually, that's achieved by some exterior changes that center around the front and rear bumpers—or more properly, how many apertures they now offer. The front is so holy, the John Cooper Works loses driving lights as there's no space for them. There's an additional cooler to the right-hand side, though on the other side there's a blanking plate to reduce drag. Bonnet stripes cost \$100, though you'd be disrespecting John Cooper's memory by not optioning them—he famously added white stripes to his formula cars to distinguish them from the other British race cars painted in the national color of green (Coopers dominated racing in a world pre-sponsorship). Options are the way with Minis, and despite the John Cooper Works being the range-topper, there's still plenty opportunity to add more—some of the cars we tested saw their price rise by almost \$10,000 with extras added, pushing the John Cooper Works into Volkswagen Golf R territory.

That's very senior competition indeed, though the JCW's a rambunctious foil to the ruthlessly efficient Volkswagen. Minis are all playful, and this most powerful one retains that characteristic. The suspension has been heavily upgraded over the Cooper S, with revised axle kinematics, aluminum swivel bearings, new bushings, high strength axle supports, and control arms. Optional variable damper control is a must-tick option; at \$500, it brings a choice of settings, which even in its tautest, most focused setup is more supple than the standard passive damper choice. There are hollow antiroll bars, a hydraulically damped engine mount, and triple path support bearings that decouple the dampers from the body to improve handling while retaining a degree of comfort.



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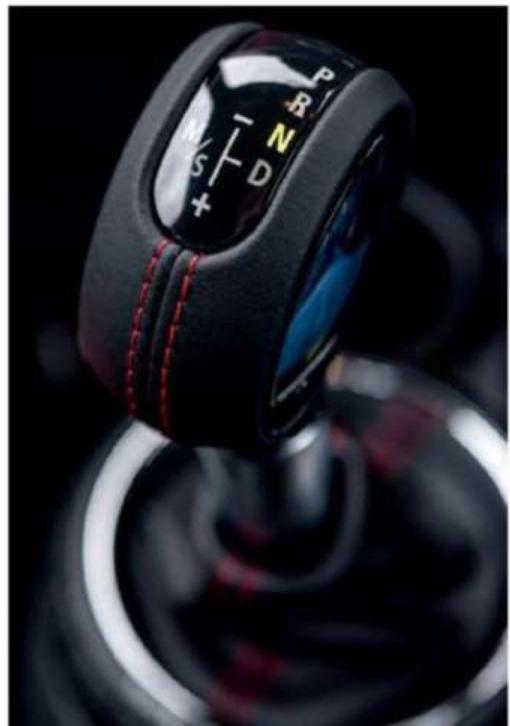
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first drive



It all seems to work, too. On the optional 18-inch John Cooper Works alloys and less than racetrack smooth roads that surround the West Sussex Goodwood circuit, the Mini JCW delivers a ride that's impressive given the car's intent. The control is fine, with the front wheels tracking beautifully, even when asked to deal with the full gamut of the engine's output. A split driveshaft design and Mini's new Torque Steer Compensation system help here, giving the JCW formidable cross-country ability and agility. The engine's seemingly never ending in its force, and despite its turbocharged nature, it's instantaneous in response, feeling more naturally aspirated than forced induction. It's entertainingly boisterous, too. Thank the JCW-specific exhaust, which reduces back-pressure with revised internal plumbing in the back box and a wider diameter (but thinner walled—so as not to increase weight) rear link pipe helps with the aural enhancements, too.



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**TECH SPEC**

'16 MINI JOHN COOPER WORKS

BASE PRICE

\$31,450

PRICE AS TESTED

Circa \$40,100

LAYOUT

Front-engine, FWD, four-seat, two-door hatchback

ENGINE

2.0L, 231hp/236-lb-ft, TwinPower turbo, double VANOS variable camshaft control, 16-valve in-line 4-cylinder

TRANSMISSION

Six-speed torque converter automatic

CURB WEIGHT

2885 lb.

WHEELBASE

92.8 in.

LENGTH X WIDTH X HEIGHT

152 x 68 x 55.7 in.

SUSPENSION

Single-joint spring strut front axle (f); multi-link rear axle (r) optional variable damping

BRAKES

Four-piston calipers, 13.0-in. rotors (f); single-piston calipers, 10.2-in. rotors (r)

WHEELS & TIRES

7.5 x 18 light alloy (f), 7.5 x 18 light alloy (r); Pirelli Cinturato 205/40 R18 (f), 205/40 R18 (r)

0-60 MPH

5.9 sec.



The standard Pirelli tires give good grip, though the chassis' throttle adjustability does allow slip, even with the electronic aids still on in the background. The Brembo brakes—19-inch rotors up front with four-pot calipers—offer mighty stopping power with decent pedal feel. It's all hugely entertaining, the JCW moving around underneath you predictably and benignly, there are no nasty surprises in its dynamic make-up. All fantastically fun and safe, though a bit more feel from the steering would make a big difference; it's quick-witted and accurate, yet lacks in anything that you could really classify as useful information. A small complaint, along with that automatic transmission, which doesn't ruin the John Cooper Works, but it certainly doesn't allow it to reveal itself in its very best light. If you're buying this British car, then do yourself a favor, be a good chap and buy it with a stick... 

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ENGLISHTOWN, NEW JERSEY, PLAYS HOST TO THE 21ST INSTALLMENT OF THE BIGGEST VW AND AUDI SHOW IN THE STATES

WORDS Bryan Joslin PHOTOS Rick DiCorpo





Once an outcast faction of unloved radicals—what with their radiators and front-wheel drives—water-cooled-VW enthusiasts have come a long way in the four decades since the Rabbit, Dasher, and Scirocco rendered the aging Beetle a novelty. Instrumental in forging solidarity between the formerly disaffected group is the annual summer gathering of the faithful, better known as Waterfest, which celebrated its 21st consecutive installment on July 18-19, 2015.

As has been tradition for most of its existence, Waterfest once again took over the facilities at Raceway Park in Englishtown, New Jersey, for a weekend filled with autocrossing, drag races, car show, and general jackassery with friends in German cars. As usual, Mother Nature messed with the crowd, showering

the masses on Saturday morning before baking them in near-100-degree heat for the rest of the weekend. Waterfest seems doomed to take place under miserable circumstances.

Since its inception, Waterfest has been all about the modified VW scene, a rolling fashion show for the latest trends. Some years are game changers, but this year was more a continuation of popular themes already in play. Air suspensions, stance, and poke dominated the show field, but proof of innovation and evolution could be found in a number of amazingly crafted interiors and the more expressive use of body color. Painstakingly stitched leather seats and door cards played well against paint colors that ranged from muted retro hues to vibrant metallics and candies.

Since its inception, Waterfest has been all about the modified VW scene, a rolling fashion show for the latest trends.





The vendor row is always another draw, and while the swap meet peddlers were as bustling as ever hawking everything from used Recaro seats to full Euro-spec double-cab Transporter pickups, the more commercial vendors were noticeably less busy than in recent years. Tuners offering on-site ECU re-flashes were as present as ever, but lines for their wares were shallow. We're hoping this isn't a sign that performance modifications have finally given way to those more concerned with how a car performs parked than driving.

Other events over the course of the weekend



included autocross races, held more conveniently this year in the parking lot adjacent to the dragstrip, and of course the drag races themselves, which included a diesel-specific class. While those events satisfy the drivers of cars taking part more than the crowd, the one event that's strictly for the enjoyment of the huddled masses—the burnout contest—continues to satisfy man's mechanical bloodlust and ravenous appetite for tire smoke. The masses were once again sated as a handful of owners voluntarily shortened the lives of their engines in the quest for tire-shredding dominance.

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One of the most noticeable changes in the show, and indeed in the scene itself, is the predominance of Audis. Once a tagalong subset of Dub culture, Audi owners are now as much a part of the crowd as anyone. And Waterfest organizers are happy to make room for them right alongside their Wolfsburg cousins.

The fact is, they have to. There's no denying the scale of Waterfest has diminished from its peak before the Great Recession. A stroll down the vendor aisles at this year's event is all the

proof needed that there has been a degree of pullback.

These things happen. Scenes change, people move on, and events evolve.

Nevertheless, Waterfest remains a hugely influential show for the national VW scene, and likely still the most important show in the Northeast. Undoubtedly, there will be a Waterfest 22 next July. It will surely be hotter than hell and/or rain buckets from heaven. And it will indisputably be a showcase for all that's happening in the VW/Audi enthusiast scene. ■



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MODERN MARVEL VS PRE-OWNED PINNACLE

IS THE MORE
ADVANCED MK7
GTI BETTER
THAN THE
MORE SERIOUS
MK6 GOLF R?

WORDS MICHAEL FEBBO
PHOTOS ROBERT GUIO

It's an age-old dilemma. I am sure tens of thousands of years ago, ancient man agonized over whether to buy that brand-new mid-level wheel off the showcave floor or get the more premium but older pre-owned wheel for the same price. Things haven't changed that much today, except our wheels are now bought in sets of four and are powered by turbocharged engines instead of us. The decision we're obsessing over, a brand-new '15 Mk7 GTI versus a '12 Mk6 Golf R, would cause any enthusiast a month of sleepless nights. Sweat-drenched mental ping-pong volleying back and forth between the newer architecture, engine, and tech compared to the all-wheel drive, higher power, and exclusivity of the best Golf Wolfsburg had to offer just a few years ago.

For 2015, the Mk7 GTI has reset enthusiasts' expectations of a hot-hatch. It's the most powerful, most refined, and best handling example to date of the car that invented the segment 40 years ago. A two-door, manual, S-model starts at just \$25,605 with destination. A four-door manual with lighting package like you see here is \$27,200. Based on the new modular transverse MQB platform, the latest car is not only the stiffest Golf to date, but also lighter than its predecessor.

Tracking down a Certified Pre-owned Mk6 Golf R is relatively easy, thanks to

the release of the '15 Mk7 Golf R in early summer and the timing of lease returns. A quick Internet search turned up 31 examples for sale with a lowest price of \$24,750 and an average price of \$28,962. Mileage started as low as 7,700 miles, with an average hovering under 40,000 miles, pretty good for a car nearly four years old. Pricing seems to be more related to the car's location rather than mileage or options, so if you live in a state where VWs are popular, taking some long drives to look at a few examples might be worth a few grand off the price.

You probably noticed that neither car here is stock. We've talked about both of these cars at length and it was determined that thoughtfully modified cars would probably be more representative of what our readers drive or aspire to drive. The Golf R is owned by Roland Poestkoke; he special-ordered his car in order to get the four-door in base trim. We applaud the extra effort to get rid of the sunroof and wish VW still offered an order program. This is just one car in Roland's stable, so this R is used primarily for fun and taken out to local time attacks. Even though Roland only uses it occasionally, he still has two sets of tires and wheels for the car, and the 18-inch wheels you see here are what he runs on the street.

The Mk7 GTI is a development car for a company that is the original American VW tuner, Neuspeed from Camarillo, California. Although this is a shop car, it is primarily used as a daily driver. By the time the shoot rolled around, this car's development cycle was just about over and everything on it was a production part, no prototype or one-off parts here. This is exactly what a reader could build with a Mk7 GTI, Neuspeed's website, and a sympathetic credit card company.

As with any good fight, we'll start with the stats. Both cars are powered by a 2.0L turbocharged inline-four. The GTI has the newest generation 3 version of the EA888. It might be the latest tech, but it still has a smaller turbocharger than the Golf R. Stock, the GTI is rated at 220 hp and 258 lb-ft of torque, while the Golf R is rated at 246 hp and 253 lb-ft of torque, both measured at the crank. If you've been watching all the dyno-testing data online, you know these cars are actually making very similar peak numbers at the wheels. The GTI does make those numbers at much lower rpm, yet it runs out of breath around 5,000 rpm, whereas the Golf R starts out slower but will keep producing power all the way to redline.

Both cars here are similarly modified with basic bolt-ons. They are both still using the factory turbos, stock internals, and everything is off the shelf.

When it comes to size, the Mk7 definitely has the advantage, although some would say disadvantage. The newer car is roughly 2 inches longer, half an inch wider, but three-quarters of an inch shorter in height. While bigger, the Mk7 GTI is notably lighter; manual transmission, four-door cars weigh in between 3,000 and 3,100 pounds. The Mk6 Golf R, however, carrying all the extra hardware to send power to the rear axle is right at 3,400 pounds. If you're wondering, we usually attribute about 200 of those pounds to the AWD equipment.

Inside, the Mk7 feels roomier and more airy. The newer interior is also a nicer place to spend time as both material



If you're interested in drag racing,
it's a hands-down win for the R.





quality and ergonomics have taken a step forward with every Golf since the Mk2. One undeniable superiority of the GTI is the base cloth. In fact, Roland liked the GTI's plaid cloth so much, he swapped out his R's original leather seats. I couldn't agree more, and I'm now halfheartedly looking for some for our long-term leather-clad GTI.

Settling into either car is easy enough. I dropped into Roland's GTI and immediately felt at home. Although this might be the super Golf, at the end of the day it's still a Golf. That's a very good thing. The Golf R starts with a bark and rumbles angrily at idle. It doesn't lazily rumble and lope, like a big-cammed V-8, but growls and shakes like an angry Doberman. The APR 3-inch turbo back exhaust is far more vocal than the factory's. Along with the noise, a Neuspeed Torque-arm Insert, a stiffener for an engine mount designed to keep the engine from rocking around, transmits more vibration into the cabin. The Mk7 has one as well, but it isn't so obvious at idle.

Both cars pull off the line as if they were stock. Roland's car has a single-mass flywheel, sport clutch, and pressure plate. The pedal effort is heavier than stock, but not at all out of character for a car like this. The GTI's is all stock. Right off idle, the GTI feels livelier, even with the heavier flywheel. The smaller turbo spins up almost immediately; coupled with the lower weight, it gives the GTI a big advantage in normal low-speed driving. Once those turbos start blowing is when the story really changes. In First and Second gear, the R's talent shines. The GTI builds torque fast and struggles to put power down at lower speeds, even in a straight line. The front-wheel-drive car scratches and claws at the asphalt while the R simply squats down and rockets off. If you're interested in drag racing, it's a hands-down win for the R. Luckily, straight-line racing in front-drive cars is for teenagers and is pretty much the last thing I'm interested in.

I made Roland and Jerry from Neuspeed drive these cars all the way up to my favorite canyons for a reason. These cars are for driving, not creating fanboy forum posts. The suspension modifications on the Golf R are a little more serious than the GTI. Both cars use Neuspeed antiroll bars; the GTI uses Neuspeed Race Springs with stock dampers and represents an affordable no-compromises upgrade.

The Golf R uses Bilstein PPS10 adjustable damping coilovers, Ground Control Camber Plates, and Super Pro Aluminum front control arms. Roland had the damping set to freeway-comfort soft, way too La-Z-Boy for my taste. I tried not to judge him.

As an immediate advantage, the Mk7

Right off idle, the GTI feels livelier, even with the heavier flywheel.





The best you can hope for with the GTI is neutral behavior after mid-corner.



is gifted with VW's new variable ratio steering rack, which makes the car feel even more nimble. The steering on the Mk6 R is heavy by today's standards and feels slow with the traditional constant-ratio rack. Two years ago, the R's steering was great, but it's all about the now. The GTI edges into turns quickly; it initiates entirely with the front end darting to the apex. The Golf R isn't as enthusiastic about initiating the change in direction. It requires a bit more patience and doesn't feel as committed at corner entry. Some of that is a higher polar moment of inertia; the Wavetrac limited-slip differential probably isn't helping with the turn-in, either, but just after the apex it starts to make sense. Roll into the power a little early to get the turbo spooled and by the time the power is delivered, the upgraded Haldex unit is sending power to the rear axle and the car pays off with a little bit of on-throttle rotation. Has that ever been said before about a Golf?

With the GTI, you commit to the turn trying to avoid understeer on turn-in—try to get most of the turning accomplished before really getting deep in the throttle. The best you can hope for with the GTI is neutral behavior after mid-corner. It does put down power surprisingly well with measured throttle input. We did most of the canyon running in Third and Fourth, which is where the GTI really excels. In some of the tighter Second gear turns, exiting is a fight with either tire spin or traction control. It's worth noting that even trying to rein in the power, the GTI still has no torque steer.

In all-out grip, the Mk7 had the advantage right off the bat in tires. The GTI showed up with Toyo Proxes T1R in 235/35-19, which is the company's ultra-high-performance summer tire. The Mk6 was equipped for daily duties using a 225/40-18 Dunlop SP Sport 01 A/S, which is also rated as an ultra-high-performance tire, but all-season. Just another fact to weigh while we are talking about the

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The Golf R is on VW Motorsports wheels in 18x7.5 inches with a +51mm offset.



Golf R having a grip advantage, even while being on all-seasons. The GTI is fitted with Neuspeed RSE10 wheels in 19x9-inch with a +45mm offset. The Golf R is on VW Motorsports wheels in 18x7.5 inches with a +51mm offset. Although the Neuspeed wheel is substantially bigger, both wheels weigh in at roughly 23 pounds. Having driven multiple fitments on the both the Mk6 and Mk7 platform, my own gut feeling is that an 18-inch wheel is still the optimum diameter for both performance and ride comfort. For racing, I'd do the same thing Roland has done and go with a 17-inch wheel.

In braking, I would give the nod to the Golf R when driven hard. Again, it walked in with a slight advantage. Not only does it have bigger hardware, but it also showed up wearing Hawk HPS brake pads on both axles. Both cars have braided stainless brake lines, so actuation is improved. At normal levels of braking, the Golf R pedal was a little too stiff, to the point of the pedal feeling a bit wooden and not communicating that well. If this were a daily driver, I think I would want that feel back around town. However, when using the brakes in anger, the pedal starts talking to you and by the time those pads are up to temperature, they serenade the ball of your foot with feedback. The GTI's brakes are, well, adequate. This isn't a Performance Package GTI, so it gives up an inch in rotor diameter front and rear. Also, at the time we did this, there were almost no options for replacement pads for the Mk7; by the time you read this, pads should be hitting shelves. I hope at least.

So we know the Golf R delivers power to the road better than the GTI, but what about the engine itself? Roland's R is equipped with GIAC X2 software, an Autotech hi-flow high-pressure fuel pump, and a variety of Neuspeed plumbing products connecting the turbo to the Neuspeed front mount intercooler

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and then to the throttle body. I would estimate this car is doing between 280-290 hp to the wheels and similar torque numbers. The GTI is equipped with Neuspeed's Power Module, P-Flo intake, and turbo-back exhaust. While the Mk7 is making roughly 250 whp, it is making more than 300 lb-ft of torque at the wheels from as low as 3,000 rpm until just after 4,500 rpm. Let's not get too focused on the numbers, however. The flexibility in power delivery of the Mk7 is the real trick. The GTI feels more like it can deliver the amount of power you're asking for, where the R feels like it has just a few options for you—off boost, lower boost, and all the boost now. Neither delivers naturally aspirated silkiness, but the part-throttle response in the GTI just feels better and more controllable. When you're doing your best pedal work to be smooth into the power or maintain throttle mid-corner, the GTI's engine management is head and shoulders above the Golf R.

At the beginning of the day, I thought this would be an easy decision. A Golf R is fantastic and all-wheel drive is almost a necessity now with how easy it is to make power with a 2.0t. But the amount of work VW has poured into the Mk7 is

immediately apparent when you drive these cars back to back. It would be easy for an enthusiast to ignore things like a nicer interior, a quieter cabin, and better electronics, but the steering, power delivery, and body rigidity are all things that really matter to us car geeks. If the Golf didn't noticeably improve with every generation, why would VW invest piles of money to do it?

As with most difficult decisions, you will need to sit down and do some real soul searching first. How much power do you really want? We all dream of big turbos and acceleration that will rival a 911, but is that realistic? Are you more concerned with the feel of the car or with the numbers? How important is exclusivity? If this car is going to be a daily driver, are you willing to trade off a bit of performance for comfort?

In the end, if it were my daily driver, I would take the Mk7 GTI. A 2016 Performance Package with Apple CarPlay, adaptive cruise control, and all the other modern toys. Yes, I would still complain that I bought something other than the base model S, so they forced me into leather interior. It would never be as fast around a track as a similarly modified Certified Pre-Owned Mk6 Golf R and

TECH SPEC

'15 VOLKSWAGEN GTI

BASE PRICE

\$26,205

STICKER PRICE (NO MODIFICATIONS)

\$27,200 (stock)

LAYOUT

Front-engine, FWD, four-seat, four-door hatchback

ENGINE

2.0L, 250-whp/300-lb-ft (wheel), turbo DOHC 16-valve I-4

MODIFICATIONS:

Neuspeed P-Flo intake, Power Module, cat-back exhaust

TRANSMISSION

Six-speed manual

Modifications: Neuspeed short shift

CURB WEIGHT

3,088 lb. stock

WHEELBASE

103.6 in.

LENGTH X WIDTH X HEIGHT

168.0 x 70.8 x 55.3 in.

SUSPENSION

MacPherson strut (f); multi-link (r)

Modifications: Neuspeed sport springs, 25mm antiroll bars (f/r)

BRAKES

Single-pistons calipers, 12.3 in. rotors (f);

single-piston calipers, 10.7 in. rotors (r)

Modifications: Neuspeed sport brake lines

WHEELS & TIRES

Neuspeed RS10 wheels 19x9 (f/r); Toyo Proxes T1R 235/35 (f/r)

TECH SPEC

'12 VOLKSWAGEN GOLF R

BASE PRICE (NEW)

\$34,760

CURRENT PRICE (EST. NO MODIFICATIONS)

\$28,500

LAYOUT

Front-engine, AWD, five-seat, four-door hatchback

ENGINE

2.0L, 290-whp/290-lb-ft (wheel), turbo DOHC 16-valve I-4

Modifications: Neuspeed P-Flo Intake, Turbo discharge pipe, front mount intercooler, Hi-Flo air charge pipe, Autotech HPFP, R8 coilpacks, 2.3-inch downpipe and cat-back exhaust, GAC X2 software

TRANSMISSION

Six-speed manual

Modifications: Wavetrac front limited-slip differential, Haldex Gen 4 ECU

CURB WEIGHT

3,390 lb. (stock)

WHEELBASE

101.5 in.

LENGTH X WIDTH X HEIGHT

165.8 x 70.3 x 56.0 in.

SUSPENSION

MacPherson strut (f); multi-link (r)

Modifications: Ground Control camber plates, Bilstein PSS10 Coilovers, Neuspeed 25mm antiroll bars (f/r), Super Pro aluminum control arm kit

BRAKES

Single-piston calipers, 13.6 in. rotors (f); single-piston calipers, 12.2 in. rotors (r)

Modifications: Neuspeed sport lines, Hawk HPS pads (f/r)

WHEELS & TIRES

Volkswagen Motorsports wheels 18x7.5 (f/r); Dunlop SP Sport 01A/S 225/40 (f/r)

doesn't have the potential for near-supercar performance, either, so that comes down to your personal goals. In a perfect world, I'd walk into the dealership and work a deal on a '16 Golf Sportwagen TDI—and the '12 Golf R. That would be the best of both worlds. ☺

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MOTOR TREND **FOUR WHEELER**

BFGoodrich® Tires, MOTOR TREND and FOUR WHEELER invited performance driving enthusiasts to submit a short video proving he or she was indeed "driver enough" to lay down the fastest lap time behind the wheel of a 2015 Mustang GT and a 2014 Ford Raptor. Six winners were handpicked from around the country and flown out to Willow Springs International Raceway, just north of Los Angeles, to challenge themselves and each other behind the wheel. To make things even more interesting, another 50 local enthusiasts were presented with the opportunity to sign up through a microsite to partake in the event.

The Driver Enough Challenge consisted of a customized road course as well as a rough and demanding off-road track. The road course challenged participants through a series of fast straights, tight corners and a host of elevation changes. Adjacent to the road course, the rugged off-road track was designed to test the drivers' skills behind the wheel on rough, rocky terrain.

In addition to a classroom "chalk talk," professional driving instructors demoed the fastest lines around each respective course, and our challengers were also introduced to our celebrity BFGoodrich performance pro drivers who set baseline lap times on each course, thus setting the ultimate time to beat.

Brad Lovell has raced and won many off-road races including: Baja 1000, Ultra 4, TORC, and nearly every other off-road discipline. His on-road counterpart, Andrew Comrie-Picard, has won the North American Rally Championship, holds a string of 17 consecutive Rally America podiums and is an X Games Rally medalist.

Lovell and ACP weren't the only two glitterati at the Driver Enough Challenge. Road racing legend

Tommy Kendall made an appearance, as did *Motor Trend's* globetrotting Editor-in-Chief, Ed Loh. Additionally, Rick Péwé, Content Director of the *Four Wheeler* Network, offered his insight and tips for the off-road portion.

BFGoodrich® Tires took full advantage of the event to prove its tires were also up to the task at hand. The on-road course featured a group of brand-new 2015 Mustang GT's

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fitted with g-Force™ Comp-2™ A/S tires, BFGoodrich® Tire's best-ever, ultra-high performance all-season tire. The g-Force™ Comp-2 A/S™ rubber gave the challengers the ability to accelerate faster and brake harder in their quest for fast times.

The off-road course proved to be the perfect

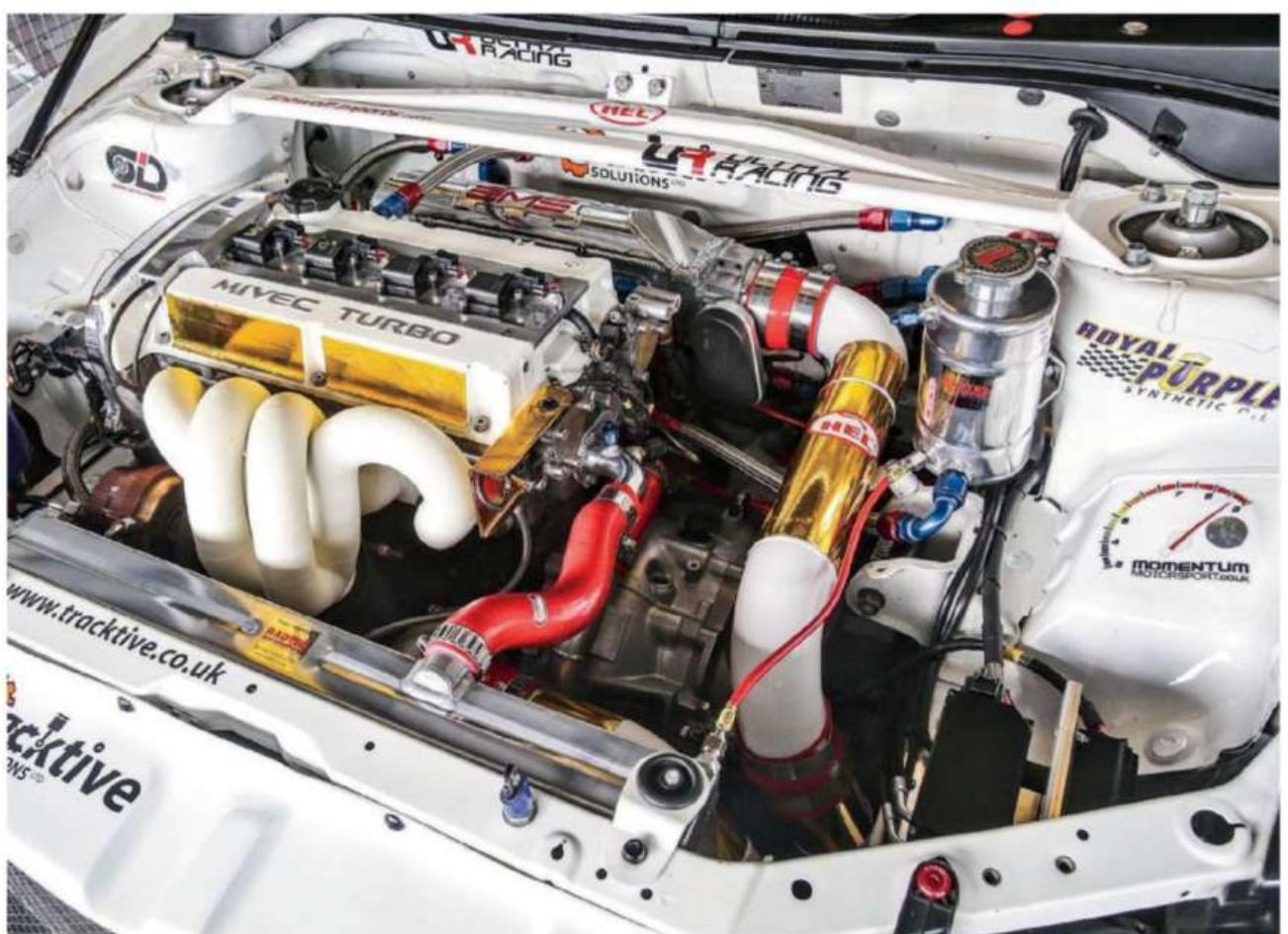
setting for 2014 Ford Raptors outfitted with BFGoodrich® Tire's All-Terrain T/A® KO2 meats. The All-Terrain T/A® KO2's tougher sidewalls, gravel endurance and improved traction all worked wonders on the off-road course as they helped the drivers hook up and push ahead.

Once the dust settled and the track went cold, each challenger's cumulative times and overall performance of on and off-road runs were calculated to determine our winners. Wade Koehl from Cypress, TX, came home with third, Gardner Nichols from Boulder, CO, took second place, and Mike Iler, from Redlands, CA, took home first place and won the grand prize of a new set of BFGoodrich® Tires.

Our pro drivers were astonished with Iler's uncanny ability to lay down consistent, controlled and fast lap times, particularly as he doesn't have any prior racing experience. Iler lapped the off-road course within a tenth of a second of Lovell's pro lap time, and proceeded to beat the on-road pro by nearly a second!

The Driver Enough Challenge was such a success that similar events may be planned in the future. Think you're driver enough? You might get the chance to prove it soon!







SPORT AUTO HIGH PERFORMANCE DAYS

The 23rd edition of the world-famous Sport Auto Tuner Grand Prix, more recently renamed the Sport Auto High Performance Days, took place at the legendary Hockenheimring located in the Rhine Valley of Germany. Although this event has traditionally been the place for tuners to show off what their products can do with the best of German engineering, recent years have seen some competitors looking across the pond for their starting point.

GeigerCars.de, the 2014 winners, were there in full force to defend their title and to try for additional class wins. To this end, the Munich-based U.S. car specialist sent a contingent of four cars to take on all comers. Last year's winning car, the 809hp Corvette C6 ZR1, was supported by a tuned Camaro Z28, a near-standard Corvette C7 Z06, and a supercharged Jeep Grand Cherokee SRT. This very fast SUV was

GERMANY'S BIGGEST TUNER PARTY CRASHED BY DETROIT IRON

WORDS & PHOTOS Ian Kuah

also the crew transport and support vehicle for the GeigerCars.de team.

As vital to the team's effort as the meticulous preparation of these vehicles was the fact that Team Director Karl Geiger was also able to secure last year's winner, Renger van der Zande, and rapid ADAC GT Masters regular, Daniel Keilwitz, as their drivers.

The formula used to calculate the final score and determine the winner adds the five fastest lap times of each vehicle around the 1.6-mile-long circuit. This year, the timed races were run on Friday afternoon, and found four Corvettes in the top ranking. Renger van der Zande in the (No. 27) Geiger Corvette C6 ZR1 once again took First Place in the fastest class with a stunning 1:05.3-minute lap, the fastest ever recorded in the history of this event.

Second and Third Places went to the two Corvette ZR1s of TIKT Performance, while Daniel Keilwitz took

the near stock (No. 26) Geiger Corvette Z06 C7 to a creditable Fourth Place. The inherent capabilities of the latest Corvette were clearly shown by his spectacular 1:06.7-minute lap, which was faster than last year's overall winning time!

Karl Geiger personally piloted the "team transporter," heaving the 718hp supercharged Jeep Grand Cherokee SRT around the Hockenheim Club Circuit in 1:21.9 seconds in a mixed Group 2 that was won by the Komo-Tec Ariel Atom of Sven Barth with a rapid 1:06.4 lap.

In Group 4, Daniel Keilwitz took the Geiger Camaro Z28 round in a very quick best lap of 1:09.8 minutes but returned to the pits with a growing problem. The mechanics immediately spotted an oil leak from one of the rocker covers that could have caused a fire had it reached the red-hot exhaust, but did not have the time to replace the rocker cover gasket. The car was withdrawn for safety reasons, but looking at the 1:11.1-minute best time of the eventual class winner, the Hohenester Audi TTRS (No. 11), it is clear that the Geiger Camaro Z28 had the potential to win, but that's the luck of motorsport.





Meanwhile, the Group 1 win was taken by Hannes Nahler, who piloted the Schirra Motoring Mini Cooper S (No. 36) to a 1:11.8-minute lap, while Jurgen Hohenester stopped the clocks at 1:07.3 minutes in the Rallyemanufaktur Audi RM Evo 2 (No. 10), a modern Audi S1 replica.

Saturday's final race took place over 20 minutes and featured a flying start, with competitors running in the reverse order of Friday, which found both GeigerCars.de Corvettes starting side by side from the last row. The two TIKT Corvettes did not take part in this final showdown.

The eventual result could not have been better, with Renger van der Zande in the Corvette C6 ZR1 and Daniel Keilwitz in the Corvette C7 Z06 scything through the field in impressive fashion.

After just three laps, the two Corvettes were at the head of the pack, and by the sixth lap, they began lapping the back markers. As the stopwatch called time on the 20-minute race, Daniel Keilwitz had won this final round of the sport auto Tuner GP 2015 by 4.3 seconds over his teammate.



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The eventual third position finisher, the 650hp (No. 55) Mitsubishi EVO 9GT, driven by Rich Marshall Racing, was only saved from being lapped by the chequered flag. It was an across-the-board victory for GeigerCars.de.

Per4mance-Industries, who entered three cars, came in Second in Group 5 with its AMG GTS (No. 22) and Third in Group 4

with its 600hp Audi R8 V-10 (No. 21). That said, the team members were also winners since they build exhaust systems for Geiger Cars.

On a negative note, the organization of the event this year was skewed by sponsored passenger rides on Saturday morning, which relegated the speed runs to Friday, when almost no members of the public were present. As this disappointed a lot of spectators who missed the big battles that normally take place on Saturday in front of thousands, I have a feeling next year's event will see a return to the tried and tested formula.



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A white Ford Fiesta ST is shown from a three-quarter front view, driving on a paved road that curves through a rugged, rocky mountain range. The car has custom wheels and a rear spoiler. The sky is clear and blue.

WORDS AND PHOTOS RYAN JURNECKA

FOREIGN FORDS

THEY MAY WEAR THE
BLUE OVAL, BUT THESE
HOT HATCHES HAVE
EUROPEAN PEDIGREE

Wait, is this really an article comparing two cars from an American brand in *european car* magazine? Yes, it is. Let's not forget both the Focus and the Fiesta were originally European offerings, born and raised on the twisty roads across the pond. In addition, these are not your stock run-of-the-mill Ford STs, either. These are Fords worked over from front to back by the gentlemen at FSWerks, the Ford customization division of Euro Sport Accessories, who have specialized in tuning Volkswagens since 1988. Now that we've got where this all fits in in this magazine, we'll continue.

We set out from FSWerks' headquarters in Anaheim, California, traversing city streets, freeways, and eventually on some of our favorite canyon roads to try and determine which of these hot hatches we'd recommend to our readers. In the interest of full disclosure, I'll let you know that the Focus is actually owned by *european car*. Luckily, who holds the title of the car doesn't hold any weight as soon as you start the engine.

My first drive was in the '14 Fiesta ST. The exterior of the car looks fantastic. It's not overtly showy in tuner decals and graphics, and instead is much more a wolf in sheep's clothing. The small FSWerks decals on the rear spoiler and a Triple R Composites front splitter are the only hints that something more lies beneath.

Under the hood, the car features an FSWerks Cool-Flo air intake kit, an ATP front mount intercooler, and a COBB V3 Accessport ECU flasher that combined give the car 190 wheel horsepower and 245 lb-ft at the wheel. First gear goes by so fast that any real performance gains aren't obvious, but slotting into second with the slick short-shifter from FSWerks and the turbo whines before planting your back into the ultra-huggy stock ST seats.





Speaking of the seats, I use “ultra-huggy” on purpose in that they almost offer too much side support, making for a snug fit while casually driving, but do hold me in place in the corners. Inside, the stock steering wheel feels great in-hand—it’s got a firm feel I can completely wrap my hands around and isn’t overly stuffed.

In the corners, the car turns quickly and stays neutral when pushed. It’s easy to get the back end to rotate with a quick throttle lift but stays predictable. The car reacts near telepathically and goes exactly where you want it to go. It’s like a terrier the way it enthusiastically attacks every corner. Unfortunately, there is a slight problem that pops up when pushed to its limits.

The car has Rotiform 18x8” three-piece SJC forged race wheels (which look brilliant by the way) with Conti ExtremeContact tires that are 10 mm wider than stock. Combined with the car being lowered, the tires rub the fender lip every time it is driven in anger, eliminating the smile from my face and contorting it into a grimace with just a touch of body shudder. It was an instant buzzkill at a moment when you wanted to have fun the most. This is where the demands of show-car aesthetics butts heads with driver’s car functionality. At lower speeds, the car tackles 90-degree corners and U-turns with ease. I can still be a glass-half-full kinda guy.

There are plenty of positives with the suspension. Once we get past the rubbing, the ride-handling mix is fantastic. The Fiesta features H&R coilovers, allowing for comfort during normal street driving, but they are definitely up to the task in the canyons. The FSWerks exhaust, a 2.5-inch exhaust system with a 3-inch COBB downpipe, provides a nice exhaust purr without drone or being obnoxiously loud. This is a combination I could live with as a daily driver with no problem.

Overall, despite the rubbing issues, it’s a fun car to drive—and the Focus ST is going to have to do something amazing to impress me at this point. This is the car *european car* magazine built, in record time, for the 2012 SEMA show. With the intent to show off its European heritage, the car is even painted in the same gray Porsche uses for its GT3 RS and wears Porsche replica wheels from Privat.

Immediately, I recognize the Focus knows how to lay on the power. It starts out with the advantage of an additional 400 cc of displacement over the Fiesta; it is also equipped with FSWerk’s Cool-Flo air intake and front-mounted intercooler, but let’s not get ahead of ourselves. It’s putting 260 hp to the wheels, a full 70 hp more than the Fiesta. But in fairness, stock versus stock, the Focus ST is gifted with more than 50 hp more than its little brother.



TECH SPEC

'13 FORD FOCUS ST

BASE PRICE

\$25,245 (2015 including destination)

LAYOUT

Front-engine, FWD, five-seat, four-door hatchback

ENGINE

2.0L, 260-hp/360-lb-ft (wheel), turbocharged DOHC 16-valve I-4

MODIFICATIONS

COBB V3 Accessport ECU Flasher with FSWERKS Custom Tune, FSWERKS Cool-Flo air intake, front mount intercooler, 3-inch downpipe, 3-inch exhaust

TRANSMISSION

Six-speed manual

MODIFICATIONS

FSWERKS short shift kit and aluminum shift bushings

CURB WEIGHT

3,223 pounds stock

WHEELBASE

104.3 in.

LENGTH X WIDTH X HEIGHT

171.7 x 71.7 x 58.4 in. (stock)

SUSPENSION

MacPherson strut (f); multilink (r)

MODIFICATIONS

H&R Street Performance Coilover kit, FSWerks Stress Bar

BRAKES

Single-pistons calipers, 12.6-inch rotors (f); single-piston calipers, 10.7-inch rotors (r)

MODIFICATIONS

Hawk Brake Pads, FSWERKS stainless steel braided brake lines

WHEELS & TIRES

Privat Kup 18x8.5 (f), 18x9.5 (r); Continental DW 245/35 (f)/(r)

This does come at a price as the Focus has a decent amount of torque steer while accelerating both straight and exiting corners. And about those corners.

Heading into any tight corner, the car is not only more hesitant but not as stable as the Fiesta, it just isn't as planted. Any time you're powering out of a corner, the car feels slippery and unpredictable. I had to be gentle on the gas coming out of corners; I couldn't get into the boost until well after the corner was cleared. Even with a much wider, much stickier Continental Extreme Contact tire, the Focus feels wastefully overpowered compared to the Fiesta's joyfully just-overpowered.

The Focus is a beefy car, noticeably so when parked next to the Fiesta, and it

comes across during the drive. Back to back, it felt remarkably heavy, perhaps not surprising given the 600 pounds the Focus has over the Fiesta.

At idle, the Focus vibrates like a muscle car with a big cam. The 3-inch downpipe and 3-inch catback exhaust from FSWerks creates a loud drive as well. The noise is OK in short doses like during the canyon drive, but the commute back home at the end of the day made me think this car would be more enjoyable wearing a helmet. Also, while FSWerks does have a short shifter for this car, it was not installed at the time and the throws in the Focus seemed quite long compared to the Fiesta. All was not bad in the Focus, however.





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TECH SPEC

'14 FORD FIESTA ST

BASE PRICE

\$21,820 (2015 including destination)

LAYOUT

Front-engine, FWD, five-seat, four-door hatchback

ENGINE

1.6L, 190-whp/245-lb-ft (wheel), turbocharged DOHC 16-valve I-4

MODIFICATIONS

COBB V3 Accessport ECU Flasher, FSWERKS Cool-flo air intake, ATP front mount intercooler, COBB 3-inch downpipe, FSWERKS 2.5-inch exhaust

TRANSMISSION

Six-speed manual

MODIFICATIONS

FSWERKS short shift kit and aluminum shift bushings

CURB WEIGHT

2,720 lb. (stock)

WHEELBASE

98.0 in.

LENGTH X WIDTH X HEIGHT

160.1 x 67.8 x 57.2 in. (stock)

SUSPENSION

MacPherson strut (f); torsion beam (r)

MODIFICATIONS

H&R Street Sport Coilover Kit, H&R front camber bolt kit

BRAKES

Single-piston calipers, 10.9-inch rotors (f); single-piston calipers, 10.0-inch rotors (r)

MODIFICATIONS

FSWERKS slotted rotors and stainless steel braided brake lines

WHEELS & TIRES

Rotiform SJC 18x8 (f)/(r); Continental Extreme Contact DWS 215/35 (f)/(r)

The Recaro Sportster seats are supremely comfortable, in contrast to the Fiesta's stock seats, and offered a good amount of lateral support while fighting the wheel of the car. Also, the H&R coilovers, while lowering the car, did not make the ride uncomfortably stiff, but rather fairly nice over the bumps and road imperfections. The Hawk Performance brake pads were nice while approaching the curves, but the race compound definitely made enough noise to let you know they weren't stock. I also thought the overall exterior look of the car was nice, but definitely doesn't let you blend in with traffic. The gray and orange accents work well, if that's the sort of thing you're after.

I'd have to agree with the magazine's Editor-in-Chief Michael Febbo in that

the Focus, the first of the U.S. ST models, comes across as a first step for what the Fiesta is now. It was as if Ford took everything it wanted in an ST, threw it all onto the Focus, and then fine-tuned everything in time for the peppy, well-balanced little brother.

The modifications that FSWerks has made to the car have only better refined the car and put an engineering cherry on top of the great work already done by Ford.

So, should you find yourself wondering which Ford compact to purchase and explore through customizations, my recommendation is heavily toward the Fiesta ST. A post-purchase stop by FSWerks will only make it that much better. ☺



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TRACK NIGHT OUT

THE SCCA
WANTS
ENTHUSIASTS
TO STOP
STARING AT
THEIR CARS
AND START
DRIVING THEM

WORDS RYAN JURNECKA

Why would a person pay a premium for a performance car and then do nothing more than park it at car shows and get-togethers? Maybe they don't know where to start or they've looked into it and feel intimidated or they've found the price of a track event is a bit too steep. Whatever the excuse, there is now an answer. The SCCA (Sports Car Club of America) has created a series it's calling Track Night in America that is taking place at more than 20 locations across the country this summer to try and remove whatever barricades might stand between enthusiasts and getting out on the track.

Each location will hold one event during the week, typically between the hours of 3 in the afternoon and 9 in the evening, once a month through August. "The goal is to provide an environment for car lovers where they bring their car and play," says Jim Llewellyn of SCCA. "These tracks are out there and we're trying to show

people it's available, much like a bowling alley."

Participants may bring any car they have, so long as there isn't a strong rollover risk, it's not a purebred race car, or it's not judged to be unsafe mechanically. I brought out my '12 Fiat 500 Sport, which the SCCA does rate as a high rollover risk for Autocross. Luckily, the slightly tippy Italian was granted admission to the Track Night event, finally allowing me to see what my car could do.

The day starts with a brief run-through of safety guidelines. An emphasis is placed on the fact that this event is not about ultimate speed but just about enjoying your car while playing it safe. No laps are timed and no trophies are given out. Instructors don't even ride along with drivers since the goal is not to attack the course at maximum potential. It's all about creating a welcoming environment for the driver who may be on track for the first time. Participants are encouraged to drive at whatever speed they are comfortable with, and should someone overstep the casual nature of the event, there are consequences based on a "three strikes and you're out" format.





You'll earn a strike if you put any wheels off the course, you're judged to be driving past your own limits, spin the car, ignore blue flags to allow faster cars to pass, or if your car is leaking any fluids and/or appears to be otherwise unsafe. The strikes are in the form of black flags, an immediate pit-in where SCCA officials will explain your infraction before letting you back out. Should you receive three infractions, your participation is over. Your day can come to a more immediate end should you have contact with any other vehicles on the track or consume alcohol, drugs, or any other impairing substance. Your day will also end quickly for any disrespectful behavior or language when off the track, as the event is intended to be family-safe.

The groups are broken into novice, intermediate, and advanced. Novice provides the participant with paced laps and is intended for those who have never been to the track or are unfamiliar with driving on that particular track. Intermediate is for more experienced drivers looking for a casual environment, and advanced is for those looking to push their cars a little harder. Each group is allowed three 20-minute sessions, giving participants more than enough time to become accustomed to their car. I personally felt satisfied after only two runs.

However, the day I attended, the field was broken into just two groups: novice and intermediate/advanced. The novice field had the most entrants, meaning the SCCA is indeed attracting people to the track for the first time.

One first-time participant was Dave Hartel of Lancaster, who brought out his gorgeous '71 Datsun 240Z, one of 28 restored 16 years ago by Pierre Z. He had never taken the car out to a track before, only displaying it in shows, until he finally came to his senses saying, "To heck with shows!" and decided to track it. He was planning on attending his first event with Speed Ventures, until he received an email from the SCCA informing him of the event only the night before and was glad he decided to go with Track Nights.





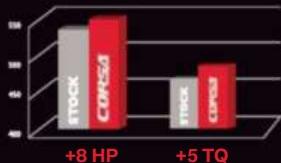
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IF YOU DO ONE THING

My car is completely stock, with the only upgrade being a set of Falken Azenis RT-615k tires. I didn't realize how much my car could be transformed with a simple change of rubber. This would probably be the one thing I would recommend doing before heading out to the track. Even though this isn't a serious event, a stock, all-season touring tire will have a tough time holding up to the abuse of track driving. The other benefit is a tire that will instill a bit more confidence and actually make the car a little easier and fun to drive. Any understeer I've experienced in the past disappeared. The screeching and howling of tread blocks being ground to dust were also thankfully absent. The tires don't require much warm-up, providing excellent grip from the start. At the end of the night, they didn't look any worse for wear compared to when I rolled in. Thanks to the predictable nature of tire, neither did I.

"I'm having a lot of fun," Hartel said. "This was enough of an experience for me. I'm thinking about doing another one over the next couple of months." Hartel even made progress over the day in learning more about his classic Japanese import. "It was a little squirrelly out there," Hartel said of his second session. By his third, Hartel felt much more confident in himself and his car and knew a little more of what to expect from future track events.

I have a new appreciation and understanding of my lucky little Fiat as well. Maybe more importantly, I have a better understanding of the track environment. This sort of thing can be intimidating, but thanks to the beginner-level focus of the event, I never once felt intimidated or uncomfortable on course. The environment always felt safe both on and off the track—partly from the strict rules set by the SCCA but also from my fellow drivers for adhering to them.

The SCCA is hoping this may prove to be a gateway experience for some participants who will seek out SCCA Autocross events, driving schools, or time trial events. The hope is that some might even work their way to club racing.

Due to a tight budget, marketing for the event will be mostly word of mouth. Tire Rack has been a major sponsor of the event, making the \$150 price possible. While this event at Streets of Willow created a turnout of about 24 cars, event participation is likely to increase based on other locations that have already run two events. The SCCA encourages anybody to come out and play. You can even bring the family or your car club buddies and do some tailgating for free. The SCCA will also offer a variety of discounts for students, those under 24, veterans, and attendees willing to help work in between run groups.

SCCA Track Nights of America isn't going to get you that F1 seat you've always thought you deserved. It will, however, get you out on the track to have some fun with your car. This beats sitting in a lawn chair at a car show any day. 

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UPDATE 3

'15 VW GTI

A BOUNCE IN ITS STEP

WORDS & PHOTOS Michael Febbo

One of these issues, I'm going to stop gushing about how good the MK7 GTI is. It probably won't be this one. Sadly, I'm not quite as enamored with my most recent service. As our long-term GTI neared 10,000 miles, it began reminding me that it needed an oil change in 1,000 miles, then 900 miles, then 800, and so on until finally it looked at me in disgust simply stating "NOW."

It seems only a few short years ago, VW was nice enough to pick up the cost of the first three services that occurred in 10,000-mile increments between picking up your new car and 30,000 miles. 2015 model year cars now only get the first service free, and it consists of an oil change, tire rotation, and a brief inspection that includes a report on brake pad life. I had my service done at my local dealer in Huntington Beach, California, and then the following day, the VW dealer in Santa Monica scored an assist for actually topping off the oil as I passed by on the way to the Bay Area. Both experiences were near painless, while only one should have been necessary. I will also note that dealerships should either commit to investing the time and money to properly wash a car, or stop trying—just my opinion.

In the last update, we had just installed our Neuspeed Power Module and P-flo Intake. After some brief testing, I came to a simple conclusion. In First and Second gear, adding power doesn't make a difference in acceleration. As a matter of fact, our

0-60 times were nearly indistinguishable from the stock runs. The problem isn't power, it's grip. With stock power levels, the GTI will spin its tires in both First and Second, and since the traction control will step in, even when disabled, it cuts the throttle and consequently boost even with mild tire spin. We tried and tried but just couldn't do anything more than a 5.9-second 0-60 mph run. I was, however, able to pick up a couple of mph in the quarter-mile trapping at 99 mph.

On the trip to the Bay Area, I carpooled with *Automobile Magazine*'s Rory Jurnecka, who spends a significant amount of time in a long-term GTI from his own publication. After a quick blast in Third gear merging on to the freeway, he proclaimed ec's GTI "significantly more powerful" than his. Third gear is really where you feel the Power Module. You feel a brief additional surge in Second, but the traction control quickly steps in and spoils the fun. It isn't the traction control's fault really, it's the tires. They just can't stand up to the monster torque the GTI is capable of producing—even with the Performance Package's limited-slip differential.

As you may remember, I equipped our GTI with Bilstein PSS10 adjustable coilovers fairly early on. I played with damping settings both at the test track and on the streets. For those wondering,

I settled on “5,” which is the middle setting, in front and an “8,” with 10 being stiffest, at the rear. At those settings, the ride was slightly stiffer than stock, but still comfortable and appropriate for this type of car. Ride height was lowered by 30 millimeters both front and rear initially, and that felt too low. The car would run out of suspension travel; it felt as if it were falling over the outside front tire and also as if it had more roll in front than with the stock suspension, likely from the increased roll-couple associated with lowering MacPherson Strut-type suspension. At one point, I ended up raising the front slightly, which gave better results.

When we received the car, part of the plan was to evaluate multiple options of tuning methods. With that in mind, I decided it was time to try something new with the suspension. The PSS10 setup is \$2,320 through Tire Rack and is what I would consider a good midrange option. We wanted to try something a bit more budget friendly, so we sourced some H&R Sport Springs, roughly \$225 and H&R antiroll bars, \$320 (front) and \$300 (rear) and brought those down to our friends at AU Tuning in Huntington Beach for an install and alignment.

We reused the stock shocks and struts as these are probably the stiffest damper settings ever seen on any GTI from the factory. Installation of the springs is straightforward, although with every generation of the Golf it seems to get a little bit harder. The antiroll bars are a bit more involved; the front requires dropping the subframe for installation. Both jobs were accomplished and the new alignment was done in a few short hours. The rear of the MK7 allows for some camber adjustment, and we settled on -1.4 degrees. Sadly, VW didn’t build any adjustability into the front of the car, so -1.2 degrees is all you get. Given a choice, we would add more negative camber up front and possibly a little more caster angle as well.

While I was at it, I thought, “Why not try and add more grip?” I called up Tire Rack and described the situation. The unabashed tirephiles agreed with my evaluation that the factory Bridgestone Potenza S001 is a good tire, especially good for factory equipment. They did say, however, that if I was willing to give up a little bit of noise, a slight bit of ride comfort, and some tread life, they could help me out with the brand-new Bridgestone RE-71R. A brand-new OZ Omnia wheel was also recommended, and with great looks and at only 20 pounds, it’s an easy choice for the GTI.

Some quick impressions of the new setup: First, I like the sport springs and antiroll bar combination. The ride height is almost exactly the same as the initial 30mm drop of the coilover setup. It’s definitely stiffer than factory, and I do feel



The guys at AU Tuning made the suspension swap look easy. This is substantially easier with a lift, but still completely doable in your garage at home.



The factory rear spring compared to the H&R Sport spring below. Note the close spaced coils that are responsible for the lower ride height.

as though the H&R Sport Springs might be just slightly stiffer than the Bilstein PSS10 spring rates. If I were to do this again, I would probably choose to replace the shocks and struts with a shorter sport damper—something with a little bit stiffer rate as well. I really think that would be the best combination on a budget. The antiroll bars have stiffened up the roll

resistance noticeably. We haven’t been back to the track yet, but even on freeway ramps, the difference is obvious. Again, we haven’t had enough of a chance to really push the car, but it does feel as if the handling is balanced better as well. I will give you a better idea once I get the car on some asphalt without laws and with plenty of runoff.



The difference between the VW and H&R rear antiroll bar is obvious in this picture. The rear bar is a single position while the front offers two positions for fine tuning.



We recommend an alignment after any suspension work, but after dropping the front subframe for the antiroll bar installation, it's mandatory. AU Tuning uses a laser rack for accuracy.

The new OZ Omnia wheels are not only a great design, but the fitment is just a little more aggressive than the factory wheels at 18x8 inches and 45 mm offset.



"VW didn't build any adjustability into the front, so -1.2 degrees is all you get."



The factory Bridgestones are the best tire on a GTI since the A008G, but these R71-R tires are quite a bit more aggressive.

👉 SPOILER ALERT

Software Tuning

I have been talking to a few different tuners about trying out an actual software flash for the ECU. I love the ease and practicality of the Neuspeed Power Module, but as mentioned before, I intend to compare as many different options on the car as possible. As most tuners are now offering both engine and DSG flashes, we will likely try out both.

Exhaust

First, I don't want this car to be unnecessarily loud, at least not all the time. I want better sound and more of it, but only when I'm driving aggressively. A valve-controlled exhaust would be ideal, but they are few and far between in the aftermarket these days. I am also going back and forth between just doing the cat-back exhaust and going all out with the full turbo-back. Hopefully by the next project update, I will have all of that ironed out.

The story is roughly the same with the new Bridgestones. They do feel stickier, but how much will have to wait and see. Between 30 and 40 mph, they make a humming noise similar to a failing wheel bearing. The ride isn't noticeably stiffer in most situations. Occasionally, a crack or expansion joint feels overly harsh, but it is nearly impossible to say if it's worse than with the factory tires without driving over it with both back to back. Luckily, I can't report on any treadwear issues just yet. The tires certainly look more aggressive than the Falken 453s previously on the car. I've received a few compliments on the wheels so far. The multi-spoke design fits the lines of the car and they are subdued enough that without knowing, they could almost be factory equipment. ☀

SOURCES

AU Tuning
autuning.com

Bilstein Suspension
bilsteinus.com

Bridgestone Tires
bridgestonetires.com

Falken Tires
falkentire.com

H&R Springs
hrsprings.com

Neuspeed
neuspeed.com

Tire Rack
tirerack.com

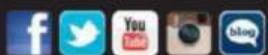
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PROJECT MK4 GTI 1.8T

PERFORMING IN A CLUTCH **Words & Photos** Justin Fivella

When the fourth-generation Volkswagen Golf (Mk4) hit showrooms in mid-1999, it blew enthusiasts away. It was a game changer for both the industry and VW fans alike. VW's gamble, moving the Golf/Jetta upmarket paid off big in sales numbers.

No longer wanting it to be seen as an entry-level car, VW blessed the exterior with handsome and timeless lines. Inside, the indigo and red gauges along with a classier ambiance were a huge leap forward in its class. But it wasn't just about show; it also had plenty of go. The 12V VR6 received some enhancements and was later replaced with the 24V 2.8L VR6 and later yet, the 3.2L 24V VR6 in the R32. However, it was the addition of the 1.8T that rewrote hot-hatch history.



When we asked SPEC to spec us (pun intended) a killer clutch and flywheel combo that could handle more than 350 lb-ft of torque and still have featherly pedal pressure, we were unsure just how close they could get to perfection. As it turns out, this Stage 2+ Hybrid combo is just that, perfection!

The VAG community had never seen an engine that took so well to mods. Simply uncorking restriction and upping boost produced tremendous gains without penalty to fuel mileage; it was the best of both worlds.

Much like the rest of the package, the chassis was also a sizable leap forward over the outgoing MK3. Rigidity was greatly increased, and while it still utilized a MacPherson strut front suspension and a torsion-beam out back, the Mk4 was a solid foundation for the aftermarket to build upon.

The Mk4 was replaced by the Mk5 in 2005. Over the subsequent years, as VW has moved through the MK6 and now the MK7, the prices on clean and well-kept Mk4s have continued to fall. You heard it here first, much like clean BMW e30 prices hit rock bottom several years ago and have climbed back up in recent years, the prices on well-kept Mk4s will start to increase.

Of course, the newer Golfs are great, but with bargain-basement prices on the Mk4s these days, we thought it the perfect time to start a couple of budget-friendly Golf builds. For the Euro rookies in the house, you'll soon see how tremendously capable the Mk4 can be, even on a tight budget. Watch for updates of two concurrent GTI projects on these pages, but you'll be able to find even more information on our website at europeancarweb.com.

THE TEST SUBJECT

After copious amounts of searching, we



The pressure plate assembly on the SPEC Stage 2+ features a double-sprung hub (application dependent) with spring cover reliefs for flexibility along with heat-treated components to withstand the abuse of drag racing, autocross, or road racing.



The Stage 2+ utilizes a full-faced, multi-friction disc with a carbon semi-metallic surface on one side flanked by a Kevlar surface on the other.



Since the GTI is a daily driver that sees regular stop-and-go traffic on the dreaded 405 freeway in Los Angeles, SPEC recommended its 12.4-pound billet steel flywheel in lieu of its more featherly 8-pound aluminum unit. The stock dual-mass flywheel checked in at 21 pounds, so both options are considerably lighter than OEM.



After removing the battery and the battery box, it's time to ditch the OEM shifter counterweight.



SPEC seriously thinks of everything; like the quality throw-out bearing and associated hardware for a worry-free install. As they say, you get what you pay for!

found our first test subject, a one-owner, '03 Silverstone Grey GTI 1.8T with 130,000 miles on the clock. The hatch was largely stock, save for some Neuspeed springs, Koni STR.T shocks/struts, an older AEM CAI, a Forge MS diverter valve, and an old-school Autotech cat-back exhaust. A keen eye might catch the period-correct Kamei mesh grille and the Caractere hatch wing as well. No need to read that again, the car was still on the factory software! How many un-chipped 1.8Ts do you think are still out there?

The exterior was an easy 8/10 with a few dings and dents along with some clearcoat issues on the roof, but other than that, it was in great shape. After some haggling, we

managed to get the car for \$3,800, which we thought was a great deal considering the condition and it's a one-owner vehicle. Our search had unearthed examples on both sides of that price tag, and while the allure of a 337 or a 20th AE car was tempting, we decided to opt for a clean standard example.

After a complete tune-up and a fluid change, the car ran great, save for some issues during baseline performance testing. In addition to erratic boost (which will be addressed in coming updates), the stock clutch was slipping during hard driving. We knew this would only get worse and had to be taken care of before anything else. Thankfully, a quick call to SPEC Clutches unearthed a world of possibilities.

ONE KILLER CLUTCH

Despite what many enthusiasts believe, selecting a performance clutch, pressure plate, and flywheel combination for a street car isn't simply about clamping force. In fact, there are many considerations beyond just the torque rating—pedal pressure, hub construction, and clutch material, along with flywheel material and weight, and many others.

In order to better help the techs at SPEC select our clutch, we decided on acceptable parameters. The ideal clutch would need to withstand at least 350 lb-ft of torque at the wheels, have pedal pressure that was only marginally stiffer than stock, and have enough flywheel inertia to make stop-and-go traffic manageable without too much flywheel weight that rev-matching was a chore. All this with only a marginal increase in NVH (noise, vibration, harshness).

After reading our laundry list of requirements, SPEC advised we run a Stage 2+ Hybrid unit with a billet steel flywheel. Starting with the pressure plate, it features a double-sprung hub (application dependent) with spring cover reliefs for flexibility and heat-treated components. The unique pressure plate design keeps pedal pressure to a minimum while greatly increasing clamping force. In our case, this clutch and flywheel combo is rated for 420 lb-ft of torque. SPEC recommends a 10-15 percent torque capacity buffer be added just to be safe.

A great pressure plate doesn't mean much if it's paired with an insufficiently engineered clutch disc. SPEC made sure we'd have the best blend of performance and civility by selecting a hybrid clutch



Once the shifter cables, ground strap, and 45-degree transmission support bracket have been released, it's time to start removing the upper bellhousing bolts.



Next comes the clutch slave cylinder. Remove the two bolts and pull the unit outward. Remember to take care around the hydraulic line.



Start by removing all the plastic splash guards beneath the car. The starter is the next piece to leave the building. Be mindful of the power-steering lines that surround it.



It's time to make our way outboard in preparation for the axles to be removed. This process starts with the removal of the sway bar endlinks. Then the ball joints must also be removed so the hubs can float outward enough and the axles can drop out of the way.

disc. Rather than a single clutch material on both sides, hybrid units feature a full-faced, multi-friction disc with a carbon semi-metallic surface on one side and a Kevlar surface on the other. The combination increases bite while minimizing chatter. When paired with our Stage 2+ pressure plate, the unit settles nicely between the Stage 2 and Stage 3 units on the SPEC roster with the civil driving manners of the Stage 2, but with a 20 percent higher torque capacity.

Another important aspect of a killer performance clutch for a street car is flywheel weight. Stock 1.8T cars utilize a heavy dual-mass flywheel that not only weighs a ton and makes rev-matching difficult, but at higher torque and rpm limits, they are prone to failure.

SPEC offers a feathery 8-pound aluminum unit but doesn't advise using it for daily-driven cars. The more mass a flywheel has, the easier it is to get a vehicle moving from a stop, but at the expense of throttle response. Consequently, the lighter the flywheel, the easier the motor will stall, but also, the quicker it will rev. Instead of the



Next on the list is to remove the inner drive axle bolts that secure the axles to the inner drive bells.

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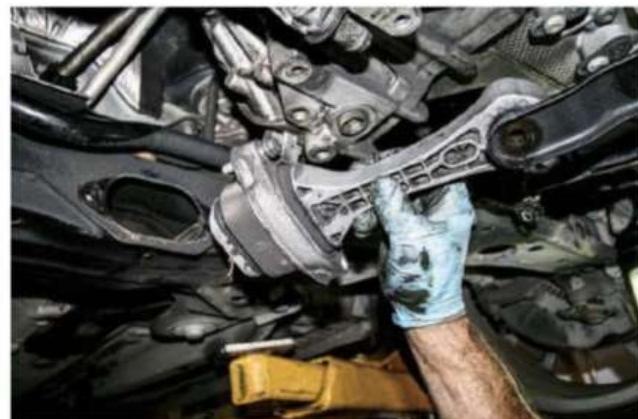
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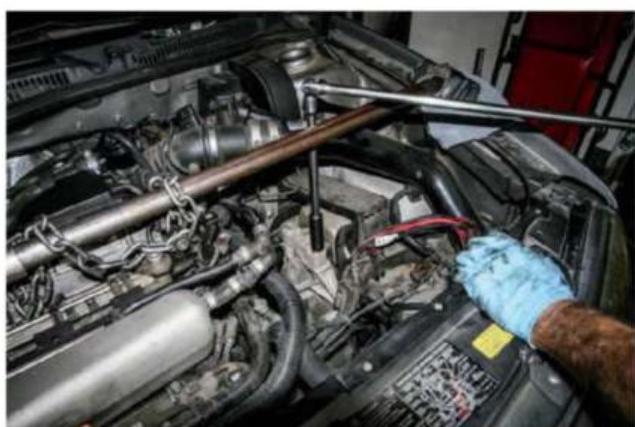
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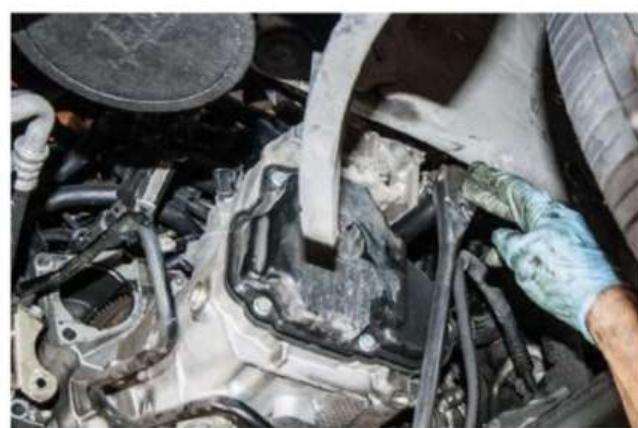
The inner drive bells are accessed once the axles have been removed. A large hex-head bolt secures them; once those are removed, simply slide the cups outward. After the wheels and the large axles nuts are removed, it's time for the axles to be lowered out of the way.



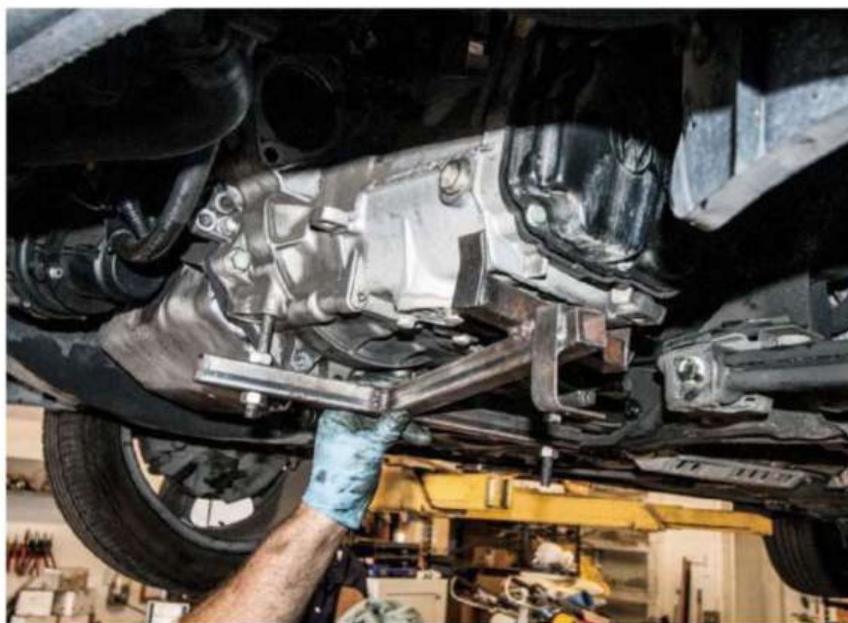
Now the infamous dogbone mount can be removed.



Stray Dog Garage knows VWs like the back of its hands, and it shows with its many special tools, like this custom engine support brace that allows the engine to securely sit in place without the mounts attached. Speaking of mounts, start with the driver-side upper mount.



Next, dive inside the inner fender on the driver side to remove the rest of the bolts securing the transmission to the motor.



Remember the part about Stray Dog Garage truly being a VW Specialty shop? Well, here is another awesome tool the company fabricated to hold different VW boxes. It bolts to the transmission before the entire unit securely bolts to a traditional transmission jack.



With some finagling, the transmission finally leaves the building.



Here's a look at the busted OEM clutch, pressure plate, and dual-mass flywheel assembly. Despite 130,000 miles, it still held for daily duties, but any speed shifting had it slipping in protest.

21-pound stock unit, the billet steel SPEC flywheel checks in at 12.4 pounds.

The billet steel flywheels are also quieter than aluminum. Those who have never owned a vehicle with a noisy flywheel might find this odd, but trust us, noisy flywheels can be tiresome on the street.

When we say SPEC is run by a bunch of enthusiasts who know the industry, we're not kidding; they've been designing and building clutches for 35 years. Chances are good that someone at SPEC owns or has owned the same vehicle as you and can speak from firsthand experience about what a given clutch kit is like in the real world. If that's not legitimate, I don't know what is.

A PROPER INSTALL

Quality components are nothing without a solid installation, and when it comes to water-cooled VWs, few people rival Scott Wood of Stray Dog Garage in Orange County, California. Wood knows the modern VAG products, but his real specialty is the old-school stuff like Mk1s through Mk4s.

Prior to opening Stray Dog Garage, Wood had been working on VWs for more than 25 years. In fact, he was a tech at the legendary VW Specialties before venturing out on his own. He's one of the only people we know of to build a turbocharged 1.8L 16V-powered, rear-drive dragster from the ground up.

As if his dedication and know-how of VWs isn't unique enough, Wood's commitment to the hobby branches well beyond his shop space.

"I know how hard it can be to find a tow company that works with modified and lowered cars, especially VWs, to ensure that they're safely and properly transported," Wood said. So what did he do? He opened his own towing branch within the Stray Dog Garage so any VW enthusiasts in the area who need a tow has a mod-friendly expert option.

With Wood's legendary experience and easygoing demeanor, it only made sense that we turn to him for the clutch, pressure plate, and flywheel installation portions of the build. Wood had our GTI in and out in less than a day.

DRIVING IMPRESSIONS

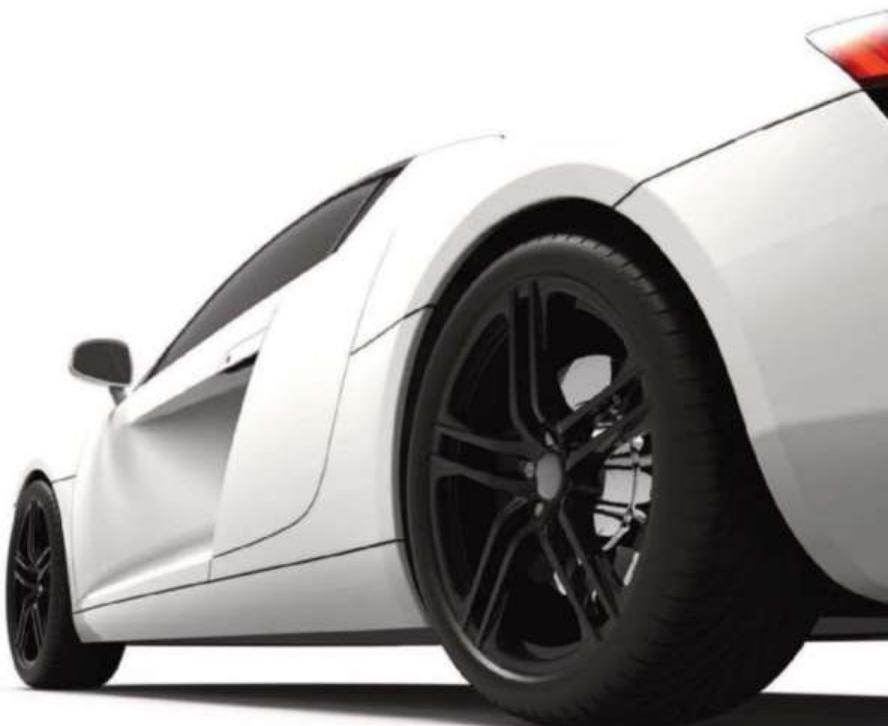
The first time we hoofed the clutch pedal, we nearly dented the floorboard. The pedal pressure of the stock clutch was already light, but the SPEC Stage 2+ Hybrid has even less pedal pressure than the OEM unit. Nope, that's not a typo, the SPEC unit can not only hold more than twice the torque of the factory unit, but its pedal effort is light and smooth—it makes driving in traffic tremendously easy and hard launches a cinch.

Speaking of smooth, it's not just about pedal pressure, it's also about engagement, and the Stage 2+ Hybrid unit is buttery. The two compounds on the hybrid clutch disc



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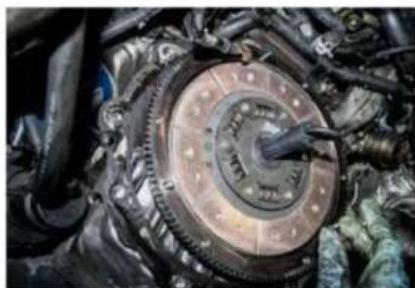
sw2tuning
SW2TUNING.COM



Don't forget the blue Loctite on the flywheel bolts!



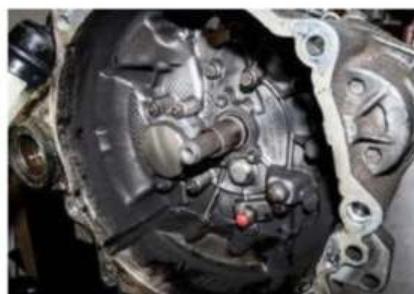
Next comes the SPEC clutch disc that should be installed following the prompts on the sticker adhered to the hub that makes it bonehead simple. There is a flywheel side and a pressure plate side, so take note. Also, it's always a good idea to check that the clutch disc fits the input shaft of the transmission prior to installing the transmission in the car to prevent a ton of headaches later on.



The supplied SPEC alignment tool makes the installation easy. Tighten the flywheel in the proper star-like sequence to insure it's properly seated. In order to torque the pressure plate to spec, Scott used his flywheel lock and a quality torque wrench.



After inspecting the rear-main seal, it's time to install the SPEC billet steel flywheel. Don't forget to tighten the bolts in the proper star-like sequence and torque the bolts to spec using the same sequence noted by SPEC.



Before reinstalling the transmission in the car, Stray Dog Garage likes to lightly lube the throwout bearing sleeve, the fingers of the throwout bearing, and its pivots; it also cleans the input splines and makes sure everything on the inside is up to spec.

Once the transmission is raised back into place, it's time to install everything in the reverse of removal and then enjoy your killer SPEC clutch.

cut the chatter normally associated with performance clutches.

As mentioned, another aspect many enthusiasts overlook when specing a clutch and flywheel combo for street cars is NVH. SPEC has gone to great lengths to create capable clutches and flywheels without all the racket, and in our case, the Stage 2+ Hybrid is barely louder than stock. As for its performance, the billet steel flywheel is just light enough to aid in rev-matched downshifts while still retaining enough mass that taking off in First gear remains like factory.

Unlike most aftermarket upgrades that boost performance at the expense of civility, the SPEC drivetrain upgrades were truly like having our cake and eating it, too. Not only did clamping forces increase, but pedal pressure decreased, and throttle response was also heightened—if someone would have told us prior to the install that we could tick all of these boxes, we would have laughed. Having seen and felt the transformation ourselves, we are believers.

THE NEXT STEP

Now that we've harnessed all our power with an amazing clutch combo, it's time to turn up the boost and see what this 1.8T can make without breaking the bank. We've got some big plans and a ton of dyno runs planned for the coming issues, so stay tuned—the tire smoke has just begun. ☺

SOURCES

SPEC Clutch
800-828-4379
specclutch.com

Stray Dog Garage
714-843-2626
wood.scott40@yahoo.com

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FOUR RINGS, FIVE POTS, SIX MEDALS

The VW/Audi 2.5L five-cylinder engine is alive and well and turbocharged. It's actually been awarded International Engine of the Year for the sixth consecutive time. This is the 2.5 TFSI in the Audi RS 3 Sportback, a model that isn't on sale in the United States because we can't have nice things. It makes 367 hp and 343 lb-ft of torque and zips the car from standstill to 62 mph in 4.3 seconds on the way to a top speed of 174 mph. An international panel of 65 auto journalists collectively stated: "Reliable Audi quality and excellent tuning make this engine a genuine pleasure to drive. No synthetically designed sound could replace the passionate sound of this magnificent in-line five-cylinder engine."



ALONG CAME A SPIDER

This is the newest Ferrari, the 488 Spider. It's an open-top version of the 488 GTB with a retractable hard roof. These days, we're quite accustomed to such clever pieces of folding hardware, but they're usually on front-engined cars. This setup is over a mid-engined car. Not so easy. Yet Ferrari says this is the most aerodynamically efficient spider it's ever built. Nestled within a space frame (fashioned from 11 different aluminum alloys) is a turbocharged 3.9L V-8 making 660 hp and 560 lb-ft of torque. Zero to 62 mph is accomplished in just three glorious seconds. Incidentally, the paintwork is a new hue: Blu Corsa.

GOLF COURSE

Volkswagen Motorsport has had the genius idea to turn a seventh-gen Golf into a racing car. This is built to take part in the new Touringcar Racer International Series (TCR) that only came into being in 2015; it's meant to be a less pricey version of the World Touring Car Championship (WTCC). But back to the metal. And carbon fiber. Naturally, there's an aero kit, the chassis is about 1.6 inches wider than stock and sits low on 18-inch alloys, while the engine comes from the Golf R. So we're talking a 2.0L turbo four in this instance, making 325 hp and 302 lb-ft of torque, linked to a DSG transmission. Racing outfit Liqui Moly Team Engstler had promising results with the car in the Austrian TCR fixture this past July, including a First Place.



LOGOLAND

Here's the new logo for Turn 14 Distribution—those lovely people who make sure everyone gets their greasy hands on aftermarket parts from such illustrious names as AEM, Bilstein, Magnaflow, and Whiteline.



Should your curiosity grow so intense that your cat's life is in danger, you could always find out more about the company by going to the website: turn14.com.

POLESTAR POSITION

In a move that's probably surprised no one, Volvo has acquired 100 percent of Polestar, the Swedish tuning house that specializes in, um, Volvos. We've already seen 350hp Polestar versions of the S60 and V60 available directly from dealers with all the manufacturer's warranty intact, plus Polestar aftermarket kits. The most exciting thing about this development is not just another round of high-performance cars, but a new generation using hybrid technology. This kind of intelligence mixed with fun could be one of the reasons why Sweden is invariably in those "top five" lists of best countries in which to live.



EVORABLE

By now, some customers will have received their brand-new Lotus Evora 400 cars. Because the assembly line is up and running, marking a significant step in the company's illustrious but occasionally troubled history. The Evora follows the usual Lotus formula of aluminum chassis and lightweight composite body, but adds a 3.5L V-6 for 400 hp and 302 lb-ft of torque. All for a pre-tax price of \$89,900.

MATRIX REVOLUTION

Organic light-emitting diodes are not something you'd buy for lunch from Whole Foods. Unless you were an alien. But they are something Audi would put into its most cutting-edge lighting systems. Yes, the company is pursuing Matrix OLED

technology because that's the kind of thing Audi does. It means less weight and greater shape flexibility, which will please enthusiasts and designers alike. We'll see more when Audi shows a new concept at the 2015 Frankfurt auto show.



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PERFECT. Pass the wrench. For all those who can't leave well enough alone (which is most of us), here are some suggestions to make your Mk7—GTI or otherwise—ride, rebound, corner, crouch, inform, and steer exactly as you wish.

AND DAMPING

1



2



1 | KW

For the suspension company that needs no introduction, here's a quick introduction. KW is one of the most respected names in aftermarket suspension, making components for many marques. Its Variant 1, 2, 3, Street Comfort two-way and three-way Clubsport sets fit 1.8T, TDI, and GTI versions of the new Golf. Most of the sets will allow a drop-in ride height down to 1.8 inches at the front and 2.0 inches at the rear. The Street Comfort set is just a little more reserved at 1.4 and 1.6 inches, respectively. **From \$1,519.99**

kwautomotive.com

2 | H&R

It's possible to spend larger amounts of money, but H&R's Street Performance coilover set is more in line with some of the alternatives mentioned here. H&R is credited as being the creator of the coilover system, so the company knows a thing or two about spring rates and valving. This system uses a monotube construction and the shock body is fully threaded for adjustability, allowing a drop from 1.0 inch to 2.5 inches. The RSS Clubsport kit adds damping adjustment and more lowering, while the RSS+ Kits take it a step further with adjustable camber mounts on the front struts. One hundred percent made in Germany. **\$1,680**

hrsprings.com



The company's B6 and B8 kits are standard upgrades, although the B14 is a best seller for the Mk7 Golf.



3 | BILSTEIN

Bilstein makes original equipment (OE) shock absorbers for Porsche. If that isn't endorsement enough, then the whole world has turned upside down. The company's B6 and B8 kits are standard upgrades, although the B14 is a best seller for the Mk7 Golf, featuring standard monotubes with progressive rate coil springs. Ride height can be lowered from 1.2 inches to 2.0 inches. **\$1,507.99 (B14)**

bilsteinus.com

4 | VOLKSWAGEN RACING

This is a British company but with a North American distributor. VWR has a lot of experience in rallying, which (as we all know) is one of the most exciting forms of motorsport ever—and why isn't it on TV more? Sorry, slight digression. Anyway, a lot of that expertise has gone into this StreetSport Plus kit. It's 12-way adjustable without needing tools or jacking, and the company claims the adjusters are "beautifully over-engineered." Ride height range for the GTI is 2.4 inches at the front, 2.8 inches at the rear. Upgraded springs and top-mount camber plates are also available. **\$2,199**

racingline-usa.com

5



Height is adjusted via the shock body, not the spring.

5 | BC RACING

These Type BR monotube shocks for the GTI are primarily for the street, but can also perform occasional track duties. Which, let's face it, is what most of us are looking for. They come with pillowball mounts, and the adjustment knobs are easy to access for fine tuning, offering 30 levels of compression and rebound. Height is adjusted via the shock body, not the spring. BC also does custom spring rates and an extreme low option. **\$999.98**

bcracing-na.com

6 | VOGTLAND

The usual suspects like KW and Bilstein become the usual suspects because they're so good. But that doesn't mean they're the only worthwhile options out there. Vogtland's adjustable twin-tube shocks can drop ride height by up to 3 inches, shine on the track, and still be eminently usable on the street. **\$919.99**

vogtland-na.com

6





Analyzing the Coilover

By Aaron Bonk

NOBODY EVER SAID making your car handle better would be easy. Camber, caster, toe, roll centers, and motion ratios all make the fine art of suspension tuning quite the opposite. If it weren't for your tires, your car's springs and dampers would be the number one thing that would determine how well it'd handle. Knowing that, deciding on the correct coilovers could be the most important decision you make on your project car, no matter what kind of car you start with. You really have two basic choices when it comes to replacing whatever

springs and dampers the original manufacturer of your car subjected you to: stiffer, higher-performance springs and dampers that are differently tuned versions of what you already have. Second, are threaded-body coilovers that allow a greater range of adjustment and are generally sold as a single package. Knowing which of the two options you're willing to pay for is the easy part. You've also got to think about all sorts of important choices, like spring rates, what all of this is made out of, whether or not damping is adjustable, and if you should splurge for monotube dampers in lieu of more economical twin-tube varieties.

COILOVER VS. COILOVER

Threaded-body coilovers have officially hijacked the use of the word "coilover." As it turns out, just about any shock or strut with a coil spring wrapped around it is technically worthy of the coilover title, whether we're talking about something you'll find underneath a mid-'90s Peugeot or an E46 M3. The similarities end with the name, though. Only threaded-body coilovers replace the entire factory spring-and-damper assembly and feature threaded shock bodies for easy ride-height adjustments, and, in many cases, adjustable damping. As a quick side note, there is some confusion when it comes to springs with adjustable perches where the spring is not over the shock, i.e. the rear suspension of most Volkswagens since 1998. For whatever reason, the industry still refers to them as coilovers, simply to express the adjustability. On after-market systems bearing the coilover name, ride-height changes are made possible through a series of jam nuts that compress or decompress the springs, or by means of threaded lower bodies that can be screwed in or out, altering a damper's length.

Spend your money wisely and you'll end up with threaded-body coilovers that also include whatever bumpstops, dust boots, and upper mounts your car needs. All of this can vary depending on the application, like with a coilover's upper mount, for example, that'll differ between MacPherson-strut-based and double-wishbone-shock-based applications. Coilovers designed for struts typically feature pillow-ball mounts and the higher-end units sometimes incorporate camber and caster adjustability. Shock-based coilovers generally feature fixed-upper mounts since the alignment adjustments don't take place at the shock.





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THE DAMPER

Every coilover is based around a shock body, or a damper. As with any damper, the coilover's upper half mounts to the car and its lower to either an A-arm or a knuckle, depending on whether we're talking about a double-wishbone, multi-link or MacPherson-strut suspension.

It's the dampers that help prevent spring oscillations and vibrations caused by the wheels and chassis. Hit a bump and the damper allows the spring to compress and decompress, and if it does what it's designed to do, it'll eliminate any additional oscillations. The energy, or shock, from hitting a bump or g-force generated body movement is stored briefly and then rereleased by the spring and is "absorbed" by the damper. All you care about is that the bump's now pretty much unnoticeable. How well all of this works, of course, depends on what's inside that damper. For example, internals that are tuned to be too stiff can slow down all of this spring movement while insides that are tuned too soft will do the opposite.

Dampers do a whole lot more than just regulate spring movement. They also reduce or eliminate rocking, pitching, dipping and pretty much everything else you'd imagine that isn't supposed to happen when going around a corner, accelerating, or stabbing the brake pedal. Look inside a coilover's shock body and you'll find a fluid-filled tube and a piston. Here, the piston pushes high-pressure hydraulic fluid through the damper's valving, which controls how all of this will respond

when counteracting spring movement. Kinetic energy pent up through suspension movement turns into heat energy that, when all goes well, dissipates within the damper's fluid. And that valving, well, it's determined by all sorts of little orifices perforated into the damper's piston that let's hydraulic fluid seep through in specific quantities as it moves up and down. Do all of this right and you're on your way to something that would appear to be black magic, if you didn't have a basic understanding of fluid mechanics.

ONE TUBE OR TWO

Threaded-body coilovers, for the sake of this discussion, are made up of one of two kinds of dampers: mono-tube or twin-tube. Mono-tube dampers control compression and rebound from within a single cylinder, or tube; it encapsulates a piston-and-shaft assembly. Twin-tube dampers are made up of two cylinders—an inner one that houses the same sort of piston and shaft, and a second one that surrounds all of this and stores the damper's hydraulic fluid. Twin-tube proponents will point out their increased piston strokes, which can affect ride quality and handling in very good ways, and is typically more than anybody needs for most street applications. Monotube dampers, on the other hand, are made up of larger-diameter internals that can displace more fluid, which means they're a whole lot more sensitive to suspension movement and respond accordingly. That additional fluid flow also means more consistent damping and cooler operating

temperatures. Mono-tube dampers are typically more expensive, though, which is mostly attributed to a more complex design.

SHOCK TRAVEL

Bottoming out will never be a good thing, which means shock travel should be a concern to you. Bottom out onto your bumpstops because your car's too low and you've just defeated about every suspension mod you've done to your car thus far. More travel is better and allows a damper to do its job as designed. Look to a coilover's springs to determine just how much travel there should be; stiffer springs don't need as much shock travel since they won't compress as much, while softer ones mean the opposite. Despite most of the misinformation out there, the lowest and stiffest you can get your car, usually isn't the best for handling.

COMPRESSION AND REBOUND

Every threaded-body coilover worth its weight in aluminum or steel can be damped in one of two ways: through pre-set valving calibrated by the manufacturer, which just so happens to be matched with whatever springs they're paired with, or by means of single- or double-adjustable controls (typically knobs) that users can dial in to whatever they prefer, for better or worse. But first you've got to understand what the heck is being adjusted. We're talking about compression and rebound, which really, after all, is what you're trying to improve by slapping coilovers on in the first place. Compression happens when the

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damper's piston moves down into its body, attempting to squish all of that unsquishable hydraulic fluid. Rebound occurs when the piston's moved away, still compressing that hydraulic fluid but in the other direction. Generally speaking, compression controls the motion of the car's unsprung weight while rebound controls the motion of its sprung weight. In other words, compression controls how fast weight is applied toward the tire while rebound controls how fast weight moves away.

Single-adjustable coilovers allow for compression and rebound adjustments that are dependent upon one another. Stiffen one and you've just done the same to the other by means of a single turn of the knob. That said, damping changes among these sorts of coilovers typically only affect low-speed rebound as opposed to any sort of dramatic compression changes. Double-adjustable—also known as split-level—coilovers allow for compression and rebound changes independent of one another. Depending on the coilover, adjustments can vary from as few as 5 to 32 or more positions. In most cases, such single- or double-adjustable coilovers feature externally mounted knobs that control preload against a spring-loaded needle valve, which determines how much fluid will flow internally. These sort of damping adjustments have their role to play, but don't mistake a few clicks of a coilover for playing as vital a role among your suspension as your tires, spring rates, or anti-roll

bars do. In other words, dial-in the rest of your suspension first before looking to this sort of fine-tuning.

We'd be remiss if we didn't mention shaft speed, or the rate at which a damper's valve does its job. Slower shaft speeds typically influence handling while higher shaft speeds determine how well a damper will do its job when going over bumps. A well-designed damper can perform at all sorts of different speeds, resulting in the sort of performance you care about and the sort of compliance your grandmother needs.

THE SPRING

It isn't the dampers that store the energy from bumps and body roll; that's what springs are for. They do all of this by compressing and decompressing to effect wheel motion. Springs keep the chassis from bottoming out, maintain tire position when going over bumps, and ward off body roll when turning. Springs also reduce squat when stepping on the gas and diving when applying the brakes. More obviously, they establish a car's ride height, which determines its center of gravity. Spring rates should be considered carefully. Err on the soft side and bottoming out could be in your future. Stiffen things up too much and your tires will never maintain complete contact with the pavement.

You can't talk about coilovers and springs without mentioning preload, which is really just the amount of pressure applied to a spring once installed. Increased preload can



help with mechanical grip by allowing more of a tire's contact patch to be utilized more of the time, but too much can do the opposite. Any coilover that relies on adjusting spring preload in order to adjust ride height ought to be considered carefully if you plan on visiting the track on a regular basis. Coilovers might seem simple enough, but stick on the wrong ones and you'll likely make your car handle worse than before. Be sure to consider a potential coilover's design, materials, wear, reliability, and rebuilding potential as well as its intended use. No matter how much adjustability whatever coilover you're thinking about offers, if they weren't designed properly to begin with, no amount of knob turning or spring compressing will help. As it turns out, a shoddy set of coilovers can bring out the worst in an otherwise good suspension, so unless you're already an expert in suspension dynamics, you're best off siding with a reputable brand and trust somebody there does know a thing or two about helping you make the right choices. ☺

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'04 VW Golf R32

HEAVEN IS A GOLF WITH SIX CYLINDERS

Words Colin Ryan

Mozart died young. Charlie Parker died young. Hendrix died young. But boy did they make some impact. The first R32 was only available in the United States for one year and now it's a classic. Maybe even bigger than a classic, more like a creature of myth. Sometimes you have to wonder what goes on at Volkswagen's meetings whenever the suits discuss the States. They obviously want to sell more cars over here, but make some of the best ones scarce.

The original R32 is based on the fourth-generation Golf, which was (is) quite luxurious. The Golf's cabin is like a mini-Mercedes with lots of soft-touch plastics. But the model range in general is heavy and the handling stodgy. Subsequently, the GTI

version, while substantially better than its immediate predecessor—the Mk3, which debuted the VR6—was still something of a letdown when compared to the second-generation Golf. The R32 shared front suspension bushings and front spindles with its platform-mate, the Audi TT, which allowed for better handling and far more steering precision. For those wondering, yes, these parts are direct swaps onto other Mk4 cars.

Although the Mk4 platform was in its final days by the time the R32 came along, the car restored everyone's faith in the idea of a VW hot hatch. Straight from the factory, it came with a lower suspension, beefier brakes, deep front spoiler, substantial rocker panels, and a bigger rear bumper, housing twin exhausts.



"The R32 is swift yet sophisticated, tenacious yet tranquil. For the vast majority of enthusiast drivers, this was all the car they ever needed. Only 5,000 units were brought to the States."

The interior is plush, with König seats each bearing that famous R logo, and the steering wheel is pleasantly chunky.

The engine by itself is enough to bring on overwhelming nostalgia and misty-eyed-ness. It is, of course, the famed 3.2L, 24-valve VR6. Its narrow-angle V of 15 degrees makes it possible to package into a compact car's engine bay. Stock output is 240 hp at 6,250 rpm and 236 lb-ft of torque at 2,800 rpm. The engine delivers the kind of response that 1.8t owners could only dream of. And that exhaust note—often compared to an angry Wookiee—is something even BMW I-6 owners will lust for.

The only transmission in town is a glorious six-speed manual linked to a Haldex part-time

all-wheel-drive system that brings the rear wheels into play when the fronts can't handle all that power. The R32 is swift yet sophisticated, tenacious yet tranquil. For the vast majority of enthusiast drivers, this was all the car they ever needed. Only 5,000 units were brought to the States.

Acceleration from standstill to 62 mph (100 km/h) is 6.4 seconds and top speed is 154 mph. These days, a '15 GTI makes 258 lb-ft of torque and can sprint from zero to 60 mph in 6.2 seconds. But, as with many things, it's not what the R32 does but how the car does it. Despite the great strides in current turbo technology, there's still a lot to be said for a revvy naturally aspirated engine with that feel of instant and fine-tuned throttle modulation under the foot.

TECH SPEC

'04 VOLKSWAGEN R32

LAYOUT

Transverse front-engine, all-wheel drive

ENGINE

3.2L, DOHC, 24-valve, V-6

TRANSMISSION

Six-speed manual

SUSPENSION

MacPherson strut (f); multilink (r)

PERFORMANCE

PEAK POWER

240 hp @ 6,250 rpm

PEAK TORQUE

236 lb-ft @ 2,800 rpm

0-62 MPH

6.2 sec.

TOP SPEED

154 mph





"By now, just about every Mk4-based R32 in the country has probably had a decade of hard driving, and plenty of them have been modified."



By now, just about every Mk4-based R32 in the country has probably had a decade of hard driving, and plenty of them have been modified. Good luck finding a stock example. We know of a few museum pieces out there, but why buy a car that you'd feel guilty about driving?

KBB values a version with 120,000 miles in good condition at \$9,076 when sold to a private party. Dealer trade-in on that hypothetical model is supposedly \$8,683. Bluebookland must be a magical, wonderful place where R32s are keenly priced.

Out there on the unforgiving streets, it's hard to find anything even close to four figures. An Internet search unearthed three cars for sale that were far from the most expensive but give us some idea: one at \$12,995 with 146,000 miles on the odometer, a second at \$14,500 with 130,000 miles, and the third at \$19,000 with 105,000 miles. These were all from dealers. A budget of \$15,000 wouldn't be a bad place to start for car and immediate maintenance.

FROM THE EXPERTS

We spoke to Kristen Potter at Parts4vws.com to get an idea of what potential R32 owners should look for. She also provided us with prices for common replacement and maintenance parts. She backed up our assessment that a car with records is worth a decent premium over a car with a suspicious past. The prices below don't reflect labor, but that's a personal thing between you and the person spinning the wrenches.

Start looking at front strut top mounts and bearings (\$33), since those will suffer from hard driving and bad roads. Inspect the condition of the seats, especially the driver-side outer bolster. The clutch system's slave cylinder might fail (\$119). Check the radiator fans; there are two (\$135 each). Anything noisier than a whooshoosh or erratic operation is a bad thing. Thermostat housings (\$80) might be troublesome, but a component affectionately known as the "crack pipe" (\$45) will inevitably, well, crack. It seems the usual VW worn timing chain woes apply to this engine, too. Tensioners can go at any time and the results are invariably catastrophic. Make sure any high-mileage cars have had their chains and tensioners changed (\$199 kit). Uneven running? That might be down to a dodgy MAF sensor (\$199). Remember also that the fluid and filter in the Haldex system will need replacing every 35,000 miles (\$75).

Buying a lower-mileage car might mean it is still on the stock clutch (\$389 disc, pressure plate, throw-out bearing kit). Occasionally, the dual-mass flywheel will need to be replaced (\$456) and there are also other aftermarket options. The R32 was blessed by VW with larger brakes front (\$216 each rotor/\$43 all four Mintex pads) and rear (\$134 pair of rotors/\$34 all four Mintex pads). While you're replacing pads and rotors, you might consider stainless steel braided brake lines (\$210 Neuspeed) to increase pedal feel and high-performance brake fluid (\$20 per liter) to handle more heat.

Basic maintenance items are relatively affordable: spark plugs (\$12 each). With every few changes of plugs, you might also consider coils (\$27 each). The factory air filter (\$14) is adequate, but most owners will look to the aftermarket (\$190 Neuspeed), while the factory fuel filter (\$9) is your best bet. The oil filter element (\$8) is downright cheap as is the drain plug and washer (\$13), but as with any car, oil has gotten pricey (look for the VW/Audi-approved 50Z.00 spec).

There are various other little issues that most owners would probably have ironed out, but expect a few more to arise. There were two recalls. One was for an iffy seal on the master brake cylinder, the other for a brake light switch malfunction.



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